

EMOTIONAL FUNCTIONING AND MEANING MAKING IN GRIEF

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Abstract

This dissertation examines the relation between emotional functioning and meaning making in bereavement. Emotional functioning (i.e., awareness, expression, and regulation of emotions) has been traditionally considered crucial in grief coping (Pennebaker, 1990; Raphael, 1983). At the same time, bereaved people who were able to find a meaning in their loss experience were found to show better adjustment and were less likely to develop grief complications than those who did not find a meaning (Davis, Wortman, Lehman, & Silver, 2000; Tolstikova, Fleming, & Chartier, 2005). The present research aimed to build a more inclusive model of grief coping by examining the interplay of emotional functioning and meaning making in grief in the same sample of people. The emotionally focused approach to human functioning developed by L. Greenberg (Greenberg, 2004) forms the theoretical foundation for the study. This approach proposes that emotional arousal, awareness, expression, and regulation provide grounds for meaning construction and eventually help to assimilate a shattering event. Following Greenberg's conceptualization (Greenberg, Auszura, & Herrmann, 2007), the first set of studies of the present dissertation examined productive and unproductive emotional functioning in grief. Three hundred and fifteen bereaved people were recruited through the online bereavement support websites to help develop and validate the *Productive-Unproductive Emotional Processing in Grief* questionnaire (PUG). The PUG scores were further used to predict meaning making in grief. It was shown that bereaved individuals who were engaged in productive emotional processing of grief and demonstrated good emotional regulation were more capable of making sense of their loss six months later.

The data for the first set of studies were collected via the Internet. While the Internet method of data collection has been previously used in grief research, its validity and reliability

had not been assessed. Thus, Study 4 of the present dissertation reviewed the use of the Internet in bereavement research and examined the reliability and validity of online data collection. The demographic characteristics and grief scores of the Internet participants were compared to those completed by traditional paper-and-pencil method. The study demonstrated that the online survey results were comparable to the traditional paper-and-pencil survey method.

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SECTION A: GENERAL INTRODUCTION

This dissertation incorporates two areas of research, each presented in the form of a complete manuscript. Study 1 developed a new measure of Productive – Unproductive emotional functioning in grief (PUG), demonstrated a two-factor structure of the PUG and established the scale's internal consistency and short-term temporal stability. In Study 2, the PUG was evaluated in its relation to measures of coping and emotional functioning in order to establish convergent and discriminant validity of the scale. In Study 3, emotional functioning scores, as well as productive and unproductive grief functioning scores, were used to predict sense making, benefits finding and positive change in bereavement. To ensure greater variability of the demographic characteristics of the participants and to increase the pool of people who could participate, the PUG and all other related measures were posted online and the responses were collected via the Internet.

Study 4 of the present dissertation examines the use of the Internet in bereavement research and compares it with the traditional, paper-and-pencil method. The reliability and validity of online data collection were scrutinized. The goal of the research was to investigate whether grief surveys administered via the Internet yield results comparable to the traditional paper-and-pencil survey method. Two main questions were addressed: are the demographic and clinical characteristics of the Internet participants similar to their paper-and-pencil counterparts, and do the psychometric characteristics of a standard grief measure, the *Core Bereavement Items* inventory (Burnett, Middleton, Raphael, & Martinek, 1997), remain stable across the two methods of data collection (i.e., online and offline)?

Emotional Functioning and Meaning Making in Grief: Rationale for Studies 1, 2 & 3

Loss of a loved one is an inevitable and painful experience. Grief appears as a complex psychological state that involves a variety of responses including emotional adjustment and meaning making. The body of the research in the field is massive and requires conceptual organization in order to build a coherent theory based on the data. For the past decade, two distinct approaches have characterized bereavement research. The traditional approach emphasizes emotional adjustment to the loss, as manifested in the notion of “grief work” (Bowlby, 1980; Freud, 1917/1957; Lindemann, 1944), while a more recent cognitive constructivist approach calls attention to the process of meaning reconstruction triggered by the loss (Fleming & Belanger, 2001; Neimeyer, 2000).

According to the traditional theories of bereavement, adjustment requires working through the loss – confronting the reality of the loss, affectively detaching from the deceased, and reestablishing emotional ties with other people (Bowlby, 1980). Emotional awareness, arousal and expression were shown to be essential for the survivor in facilitating coping and recovery from psychological trauma (Pennebaker, 1990) and grief (Raphael, 1983). The newer cognitive constructivist models of grief suggest that bereaved people reflect on their loss, search for and find meaning in the loss in order to assimilate their experience into their worldview and their view of the selves (Neimeyer, 2000). Davis, Wortman, Lehman, & Silver (2000) demonstrated in a group of bereaved parents and spouses that individuals who were able to make sense of their loss experience showed better adjustment, i.e., had higher subjective well-being and less anxiety, sadness and anger. Another study established that bereaved individuals whose loved ones died in car accidents involving drunk drivers were less likely to have psychological

trauma, complicated grief and impaired self-reference if they reported finding meaning in their experience (Tolstikova, Fleming, & Chartier, 2005).

The question arises regarding which of these approaches best reflects how bereaved people are adapting to their loss? There is a growing recognition in many areas of psychological research that emotion processing and cognitive processing intertwine and enhance each other. Thus, it is important to examine the relation between emotional functioning in the loss and meaning reconstruction in order to link the two approaches described above. The current study proposes that bereaved individuals who tend to focus on their emotions, i.e., have high emotional awareness, express their feelings, and show good emotion regulation skills will be more able to make sense of their loss and/or benefit themselves through assimilation of the shattering experience.

Emotion-Focused Approach to Grief Coping

The emotion-focused approach states that grief has to be emotionally processed in order for assimilation/accommodation of the shattering experience. This view initially arose from psychoanalytic theory which proposed that libido, the affective energy, has to be “withdrawn from its attachment to the [lost] object” (Freud, 1917/1958, p. 244). Thus, the process of mourning had long been believed to require an extended period of grief work (M. Stroebe & Stroebe, 1991), during which time the psychological ties to the deceased are detached by “working through” the emotional pain of the loss (Bowlby, 1980, Lindeman, 1944, Raphael, 1983). Full and complete grief work appears to be necessary to establish new affectionate bonds. Through the grief work the bereaved person comes to the acknowledgement and acceptance that old conditions of living, including old gratifications and goals, are no longer attainable and that new goals, approaches, and relationships must be found.

Emotional pain is a primary reaction to the broken emotional attachment. It is believed that an overt expression of emotional pain to others fosters assimilation/accommodation of grief feelings (Bowlby, 1980, Raphael, 1983), and is a highly adaptive coping strategy (Shuchter & Zisook, 1993). If there were no overtly expressed negative emotions, it has been typically understood as a defensive inhibition of the natural reactions to the loss (Raphael, Middleton, Martineck, & Misso, 1993). The psychological literature has long maintained that the inhibition of emotion has negative physical and mental health consequences. Coping processes that involve minimization or denial of painful emotions associated with the loss have typically been characterized as disordered (Bowlby, 1980).

Recently, there has been a call to re-evaluate the role of emotional expression in grieving (Bonanno & Kaltman, 1999). For example, the social-functional model of emotional expression views affective expressions in grief not as a private processes of grief work, but rather as an effort to communicate with other people (Bonanno, 1999). The emotional expression informs others of current emotions and brings about responses in others. By expressing their emotions, people shape social interactions and direct them to improve personal well-being, relationship satisfaction and adjustment to traumatic events. This influence is likely dependent upon whether the emotion expressed is positive or negative. That is, expression of negative emotions would increase stress and health problems, whereas expression of positive emotions would be associated with increased well-being and more satisfying personal and social relations. Thus, the expression of the pain of a loss may actually exacerbate the grieving process (Bonanno & Kaltman, 1999). In a study by Bonanno and Keltner (1997) the facial expressions of negative emotions early after conjugal loss were positively correlated with grief at 14-months post-loss.

The findings regarding the role of positive emotions in grief (Bonanno & Keltner, 1997) also challenge the belief that painful affect has to be expressed in normal grieving in order to facilitate assimilation/accommodation of the loss. Support for the adaptive role of positive emotion during bereavement has come primarily from Bonanno and Keltner's (1997) study of grief-related facial expressions. Their findings indicated that genuine laughter and smiling were exhibited by the majority of the participants as they described their lost relationship. Laughter and smiling were correlated with the experience of positive emotions and with reduced grief at 14 and 25 months post-loss. It was found that conjugally bereaved individuals who showed genuine laughter at least once while they described their lost relationship also reported better adjustment in the lost relationship and were less ambivalent about a current close friend or relative than were non-laughers.

Another challenge to the traditional view on the function of emotions in grief was set by the research on the role of avoidance in grieving. Emotional avoidance during bereavement was commonly associated with prolonged or delayed grief. Current conceptualizations of emotional avoidance are changing (Bonanno, Keltner, Holen & Horowitz, 1995). While the complete denial of the loss of a loved one is problematic, it is now considered that distraction or transitive shifts in awareness lessen the emotional impact of the loss. For example, the Dual Process Model of coping developed by Stroebe & Schut (1999) suggests that active confrontation with loss may not be necessary in grieving. There may be times when denial and avoidance of reminders are essential. The model proposes that bereaved people experience alternation between a loss orientation (coping with loss through grief work) and a restoration orientation (adjusting to the changes triggered by loss). This reflects a movement between coping with loss and moving forward, which differs for each individual.

To summarize, the traditional view on emotional functioning in bereavement proposes that experiencing and expressing the emotional pain in grief is a central coping mechanism and a crucial aspect of healing. The growing critique of the traditional assumptions asserts that overt expression of emotional pain may be not adaptive; on the contrary, avoidance of pain and positive affect were shown to lead to the faster recovery. It is important to re-examine the role of affective experiences in grief in order to address the aforementioned theoretical differences.

Meaning Reconstruction Approach to Grief Coping

Neimeyer (2001) pointed out that the recent emerging theories of grieving emphasize a bereaved person's quest for a meaning and highlight the creation of a personal narrative that makes sense of a changed reality. Cognitive-constructivist grief theory stresses that meaning of the loss has to be sought and found for assimilation/accommodation of loss experience. Meaning reconstruction in response to a loss is considered a central process in grieving. Discussion of the importance of the search for meaning after shattering life events has gained increasing popularity in recent decades (Davis, 2001; Davis et al., 2000; Fleming & Belanger, 2001; Wortman, Silver & Kessler, 1993). It is believed that the impact of life events depends on whether they can be incorporated into an individual's worldview. By worldview, the authors refer to a coherent and meaningful system of beliefs, assumptions, or expectations related to the self, others, and the world. Whether an event is congruent with a person's worldview depends both on the characteristics of the event and the established belief system. Shocking, uncontrollable and destructive events might shatter one's assumptions that the world is a predictable and secure place and result in feelings of helplessness and powerlessness. Violations of basic worldviews are likely to cause personal devastation and distress.

In the recent research by Davis et al. (2000) the bereaved participants were asked whether they searched for meaning in their loss, and if a meaning was found. The authors reported that 86% of parents who lost their children due to Sudden Infant Death Syndrome and 74% of study participants bereaved due to a motor vehicle accident indicated that they indeed searched for meaning. However, more than half of these people reported that they were unable to find meaning in the death of a loved one. Tolstikova, et al. (2005) replicated the results of the Davis et al. (2000) study with a group of 84 participants who lost a loved one due to either a drunk-driving accident or due to illness. The majority of the respondents (89%) reported that they tried to make sense of their loss experience. It was also found that meaning making processes had a significant impact on reported grief, trauma and complicated grief symptoms, as well as self-worthiness. The individuals who failed to find meaning demonstrated greater intensity of grief feelings and more extensive trauma symptoms. Tolstikova, et al. (2005) revealed that 100% of individuals who met the criteria for complicated grief reported that they searched for meaning and did not find it, whereas among people who did not meet the criteria for complicated grief, 64% reported that they did not search for meaning or searched and found meaning. In addition, the search for and failure to find meaning was significantly associated with diminished sense of self-control and low self-esteem. Fully 80% of participants who reported impaired self-reference indicated that they failed to make sense of their loss; in contrast, 66% of individuals who did not report impaired self-reference stated that they never searched for meaning or searched and found meaning.

Three dimensions of meaning. Davis (2008) and Gillies & Neimeyer (2006) proposed a three-dimensional model of meaning making. The three cognitive aspects of meaning include: (a) making sense of the loss, i.e., findings reasons or explanations for what has happened; (b)

finding benefits, i.e., positive reappraisal of the event; and (c) integrating changes in identity, i.e., changes in the roles, sense of self and social relationships. The conceptual validity of these aspects was confirmed empirically in a number of studies (Davis et al., 2000, Frantz et al., 1998; Michael & Snyder, 2005; Tolstikova et al., 2005). The research found meaningful associations between each aspect of meaning and grief characteristics.

Michael and Snyder (2005) and Nolen-Hoeksema with colleagues (Nolen-Hoeksema, McBride, & Larson, 1997) examined the relation between meaning making and ruminative coping. In a prospective study involving bereaved participants recruited from hospices prior to their loved ones' death, Nolen-Hoeksema et al. (1997) found that ruminative coping predicted the inability to make sense of the loss at the follow-up assessments. Michael and Snyder (2005) demonstrated that amongst the undergraduate students who experienced a death of a loved one sense making was associated with decreased levels of rumination about the death and positive well-being. The relation between benefit finding, rumination and well-being was more complicated. For those who experienced the death over a year ago, finding benefits was positively associated with ruminating about the loss and depressive symptoms (Michael & Snyder, 2005). Davis & Nolen-Hoeksema (2001) stated that while event characteristics predict sense making, the only predictors of benefit finding were personality factors of the bereaved individual, such as degree of optimism or pessimism. Posttraumatic growth has also been predicted by personality factors of optimism, extraversion, as well as openness to internal experience (Tedeschi & Calhoun, 1996) and environmental factors of social, family and community support along with a stress-free posttrauma environment (Schaefer & Moos, 1998).

Several studies have examined the predictive power of sense making and benefit finding (e.g., Davis, Nolen-Hoeksema, & Larson, 1998; Holland, Currier, & Neimeyer, 2006; Keesee,

Currier, & Neimeyer, 2008). Different patterns of relation were found between sense making and benefits finding, and grief adaptation. For example Davis et al. (1998) asked people who had lost a loved one recently whether they could find a meaning in the experience (sense making) and whether they could find anything positive in the experience (benefits finding). The results demonstrated that sense making predicted healthy adaptation in the six months post loss, whereas benefits finding was related to a reduction in emotional distress 13 to 18 months after the loss. In contrast, Holland and colleagues (Holland et al., 2006) and Keesee and colleagues (Keesee et al., 2008) failed to find a relationship between benefits finding and bereavement adaptation in a diverse group of bereaved participants. The participants were asked the same questions about meaning and benefits as in the Davis et al. (1998) study and their answers were linked to the standard measures of grief and complicated grief. The results supported only the predicting power of sense making and not benefits finding. Keesee et al. (2008) questioned whether both meaning making and grief intensity could be the result of a third factor, such as attachment or emotional regulation.

Davis (2008) and Gillies and Neimeyer (2006) hypothesized that the reports of benefits and personal growth might be a “defensive illusion.” According to Wortman (2004), reports of growth might to some extent reflect defensiveness and attempts on the part of bereaved to convey an impression of good coping. Reports of personal growth may represent cognitive defenses or illusions that serve to maintain or shore up self-esteem and a sense of mastery over the event, by selectively focusing on aspects that make an individual appear advantaged. These defensive reactions may be protective to the threats to self-esteem embedded within a loss experience. It implies that one is stronger now, has learned that one can cope, or has learned to appreciate the important things in life.

Summing up, search for meaning, self benefits and posttraumatic growth are important psychological outcomes for survivors. As previous research has demonstrated, for some people the search is successful, leading to sense making of the loss and facilitating assimilation/accommodation of loss experience. Whereas for other individuals, the search for meaning leads to the failure to make sense of their experience and possible grief complications.

Studies 1, 2 and 3 of this dissertation aim to establish the connection between emotional functioning and meaning making in grief. The relation between emotion and cognition has been a focus of attention in philosophy and psychology for centuries. The goal of the following section is to provide a brief account of how the relation between emotion and cognition has been conceptualized.

History of the Emotion Versus Cognition Debate

The discussion of the relationship between emotion and cognition began in ancient Greece and continues to the present (Lyons, 1999). The main issue of the historic and current debates can be summarized in the following question: “Can emotion exist without cognition (independent of thought) or not?” The cognition-emotion debates were initiated by the classic philosophical tradition separating psychological functions. Briefly, the dualist school of philosophy (Plato, and neo-Cartesians, including James and Lange) saw emotion as bodily function, independent, and often opposed to the function of mind (cognition). They also often referred to the emotional life as a wild, distorting, or primitive vitality. Monists (Aristotle, Stoics and Epicureans), on the contrary, did not oppose body and mind and believed human emotions were influenced by the way people see the world around them, i.e., by a cognitive picture of the world. There were a few exceptions to this practice. First, Descartes, as a dualist, placed emotions in the soul instead of the body and defined them as mind’s reflections upon bodily

reflexes. He believed, as did monists, that emotion cannot exist separate from cognition. Second, Spinoza, as a monist, acknowledged the possibility that emotion has a separate life from cognition. He viewed some emotions as pre-cognitive desires (basic emotions, the building blocks) while others were a product of cognition applied to basic emotions.

In the recent past, the emotion-cognition debate took on a fresh start when Zajonc (1980) “touched a nerve” (Lazarus, 1999, p. 7) in his article presented in the *American Psychologist* in celebration of his Distinguished Scientific Contribution Award from the American Psychological Association. In this article, Zajonc argued that: (1) emotion can be independent of thought, and (2) emotion can precede thought. He pointed out a considerable number of findings strongly suggesting “that affective judgments may be fairly independent of, and precede in time, the sorts of perceptual and cognitive operations commonly assumed to be the basis of these affective judgments” (1980, p. 151).

This publication triggered a new perspective on the emotion-cognition debate. As Lazarus (1999) argued, the relationship between cognition and emotion implies the existence of two autonomous entities, which, in fact, are constructs of scientific analysis, whose autonomy does not exist in nature. However, both emotion and cognition have certain attributes that distinguish them. Lazarus pointed out that the method of research will influence the result of our analyses. Reductive analysis creates arbitrary scientific categories, whereas an integrated perspective will see emotion and cognition as a non-reducible entity. Lazarus then argued, “There is nothing wrong with asking how the functions of mind influence each other and there is nothing wrong with arguing that we should not disturb the whole in efforts at analytic reduction. Both ways of thinking are important and ... necessary for proper understanding” (Lazarus, 1999,

p. 14). Synthesis, or placing the variables back together into a living whole, is important to avoid the distortion of natural processes caused by reductive analysis.

Contemporary “cognitive emotion theory” (e.g., Lazarus, 1991) views beliefs as major antecedents of emotions. This position is particularly emphasized by “appraisal theory” (e.g., Scherer, 1999). According to this theory, emotions are a result of how an individual believes the world to be, how events are believed to have come about, and what implications events are believed to have. Lazarus (1999) emphasized that emotion could not occur without cognition, whereas thought can occur without significant emotion.

Another group of researchers, although acknowledging that emotional experience might involve some sort of cognitive meaning, states that emotions can be independent of thoughts and create pre-cognitive evaluations of the reality (e.g., Frijda, Manstead, & Bem, 2000; Greenberg & Paivio, 1997). Emotion can be activated by a variety of sources, including non-cognitive: “Emotion is activated by the automatic recognition of complex pattern, not by conscious thoughts, and is more like apprehension than reasoning” (Greenberg & Paivio, 1997, p. 15). Systematic connections between the primitive, pre-organized emotions and categories of objects and narrative scenes leads to a second, higher-order type of emotional experience. Much of adult emotional experience is of this higher order, generated by learned idiosyncratic schemes that help the individual to anticipate future outcomes. This higher-level synthesis of levels of processing has been called an emotion scheme (Greenberg & Angus, 2004).

Most researchers have reached agreement that emotion and cognition, which could be viewed as functionally distinct, are part of the whole and have mutual influence upon each other. They are intertwined and enhance each other (e.g., Frijda, Manstead, & Bem, 2000; Greenberg, 2002; Lazarus, 1999).

The present studies respond to the recent emphasis in the literature on either emotional aspects of grieving or on the meaning making aspects of grieving and tries to link emotional processing and cognitive processing in grief in a coherent model. Greenberg's (Greenberg, 2002; Greenberg & Paivio, 1997) view on the role of emotions in meaning making is helpful in the conceptualization of grief development and assimilation. According to Greenberg, working with psychological distress involves experiencing the bad feeling, then symbolizing it and then reflexively reviewing it. The theoretical framework for the proposed study comes from Greenberg's (2002) statement that emotional awareness, expression and symbolization of emotion in language help with re-appraising the situation, generate a new sense of personal experience, provide ground for meaning construction, and eventually help to assimilate a shattering event. Thus, the success or failure in emotional processing in grief is expected to predict successful or failed search for meaning.

Emotionally Focused Approach by L. Greenberg

Emotional awareness, expression and regulation. Awareness of what one feels has been a recognized principle of change (e.g., in the Gestalt therapy) and seen as an important therapeutic goal (Perls, Hefferline & Goodman, 1951). Salovey and colleagues (Salovey, Mayer, Golman, Turvey, & Palfai, 1995) found that increased emotional awareness predicted increase in positive mood and a decrease in ruminative thoughts following a distressing stimulus. The adaptive functions of emotional regulation and expression received empirical support. For example, Pennebaker (1990) demonstrated that writing about emotional experience is linked to reduction in physician visits, improved work performance and subjective well-being. On the other hand, alexithymia – difficulty in identifying and expressing emotions – was found to associate with adverse health conditions (Bagby, Parker, & Tylor, 1994a).

Greenberg (Greenberg & Paivio, 1997) suggests a functional differentiation of emotional experience: emotions can be seen as either primary, secondary, or instrumental. Primary emotions also are divided into biologically adaptive and learned maladaptive emotions. Primary adaptive emotions are fundamental states for which the adaptive value is clear, such as, sadness at loss, or fear at threat. These emotions have a biological origin and represent an initial or fundamental response to an event or experience. Primary maladaptive emotions are those primary emotional responses that became dysfunctional through pathogenic personal history. For example, the fear associated with different types of phobias or fear of comfort or touch, shame at self-expression, feeling of worthlessness or insecurity. These emotions were initially adaptive (for example, learning to fear closeness because it was associated with abuse, or feeling shame at self-expressions because it caused humiliation) but they function maladaptively in the changed (different) circumstances. Secondary emotions are reactions to identifiable, more primary emotional or cognitive processes. They can be a secondary response to primary emotional responses, such as expressing secondary anger when feeling primarily afraid (stereotypical of men), or crying when primarily angry (stereotypical of women), or secondary responses to cognitive processes, such as feeling depressed when thinking about failure. Finally, instrumental emotions are experienced and expressed in order to affect others, for example expression of anger in order to dominate others or sadness and crying in order to evoke sympathy (Greenberg & Paivio, 1997).

In psychotherapy, in terms of successful or unsuccessful outcomes, Greenberg distinguishes between productive and unproductive emotional states (Greenberg, 2004). A person is in a productive emotional state - in terms of a successful emotion processing – when he or she experiences a primary adaptive core emotion, is aware of it and able to express it without

being stuck in it. The person also is not overwhelmed by the emotion and takes responsibility for his or her feelings, i.e. does not take a victim stance.

A productive emotional state therefore has three components: First, emotion has to be primary (biologically adaptive, i.e. has to be the first response to the “survival-related truth of things” (Greenberg & Paivio, 1997, p. 15), and not reducible to any preceding or underlying emotional responses or cognitive processes. Some examples of the primary emotions are sadness at loss, anger at violation, and fear at threat. Second, the manner in which the primary emotion is processed is important: the person has to experience it, be aware of it and be able to express it. Third, the emotion has to be regulated: fluid (not stuck) and the person has to be not overwhelmed by it.

An unproductive emotional state is characterized by (1) a weak, negative sense of self, stance of a victim, unregulated emotion (overwhelmed, dissociated), stuck, fear of losing control, feeling worthless, insecure, and (2) the experience of secondary emotions that are reactions to some emotional or cognitive process, not the situation by itself. These emotions do not have a biologically adaptive value, but rather are socially adaptive or conditioned or learned from the personal experience in communicating with other people. Some examples of the primary maladaptive emotions in grief are feeling angry at the deceased for the “abandonment”, or feeling guilty for going on after the death of a loved one.

Thus, when examining emotion processing in grief, it is important to consider not only the presence or absence of the affect or its positive or negative valence but also its functional origin (i.e., primary, secondary or instrumental) and its productivity (i.e., productive versus unproductive). The present study focuses on examining productive and unproductive emotional processing in grieving.

Symbolization of emotions and meaning construction. The experience of emotion alone does not lead to change; how people make sense of their emotional experience and how they use it is what makes the difference (Greenberg, 2002). Greenberg has emphasized the importance of processing the aroused emotion by symbolizing it, bringing it into awareness and, reflecting on it. Symbolization of feelings is understood as an ability to reprocess emotion by labeling it or attaching words to feelings. Putting emotion into words “allows previously unsymbolized experience to be assimilated into conscious, conceptual understandings of self and world where it can be organized into coherent story” (Greenberg, 2003, p. 22). The capacity to symbolize emotionally traumatic experience allows one to articulate it and thus to make sense of what previously was overwhelming and unspeakable. By evoking painful memories and symbolizing them in a safe environment, people gain control over their experience and become authors rather than victims of that experience (Greenberg & Paivio, 1997).

Benefits of incorporating Greenberg’s theory in grief research. Each of the major approaches to grief has tended to become a foundation for clinical interventions. For example, the grief work approach led to an emphasis on emotional expression and emotional re-processing in therapy. In contrast, the cognitive-constructivist approach emphasizes meaning reconstruction in psychotherapy. As Shaver & Tancredy (2001) have pointed out, it is likely that most clinical observations and research speculations about grief present a viable perspective. The problem is not so much to counter those observations but to find out how they can be incorporated into a single or comprehensive theoretical framework. It is important to integrate the discoveries rather than multiply isolated findings and approaches. The emotion-focused approach by Greenberg provides a venue for such integration. Greenberg’s depiction of the relation between emotion and

cognition allows bringing together the theories of grief work and the cognitive-constructivist perspective incorporating them in a coherent and empirically supported theory.

Rationale for Studies 1, 2 & 3

The importance of emotional awareness, expression and regulation in grief has been traditionally recognized by the bereavement specialists and encompassed in a broader notion of a “grief work”. Emotion theorists have also emphasized that emotional arousal, awareness, expression and regulation are the necessary processes that facilitate coping and assimilation/accommodation of a disruptive, stressful life events. Furthermore, Greenberg (2003, 2004) stressed that it is important to examine how productively the emotion is processed in order to predict the outcome.

The newer cognitive constructivist models of grief suggest that bereaved people must reflect on their loss, search for and find meaning in the loss in order to assimilate their experience into their worldview and their view of the self (Neimeyer, 2000). It has been demonstrated that people who were able to make sense of their loss experience show better adaptation (Davis et al., 2000), and are less likely to have psychological trauma, complicated grief and impaired self-reference (Tolstikova et al., 2005).

The first set of studies of this dissertation investigates emotional functioning and meaning making following a significant loss. Following Greenberg (2002), it is believed that emotional arousal, awareness, expression and regulation of grief feelings provide the opportunity to reappraise the loss experience and create a new meaning of the event. It is postulated that productive emotional grief processing will generate a new sense of the personal experience, provide ground for meaning construction and will help to assimilate the loss of a loved one.

Thus, the goal of the first study is to establish the relation between emotional awareness, expression and regulation, and meaning reconstruction in bereavement.

This research is process oriented in its theoretical conceptualization. Therefore, a short-term longitudinal design was chosen. Data were collected at two time points with a six months interval. Grief, coping, emotional functioning and meaning making were examined initially (Time 1) and reassessed again 6 months later (Time 2). The purpose of conducting these assessments at two time intervals was to investigate how emotional awareness, expression and regulation at Time 1 would influence meaning making at Time 2, and how productive and unproductive emotional states would moderate these relations.

The following predictions were made:

1. It is expected that bereaved individuals who tend to focus on their emotions will be able to make sense of their loss and/or benefit their selves through assimilation of the shattering experience. In other words, it is predicted that emotional awareness/expression/regulation scores at Time 1 will positively predict meaning-making/benefits scores at Time 2.
2. It is predicted that the productive/unproductive emotional functioning will be a moderator of the relation between emotional awareness/expression/regulation and meaning making. There will be an interaction between emotional awareness/expression/regulation scores and productive-unproductive emotional state scores in predicting meaning/benefits scores: emotional awareness/expression/regulation scores at Time 1 will positively predict meaning/benefits scores at Time 2 for those in productive emotional state. Emotional awareness/expression/regulation scores at Time 1 will negatively predict meaning/benefits scores at Time 2 for those in unproductive emotional state.

Internet Methodology (Study 4): Introduction

Gathering data in virtual space has gained increased popularity in the past decade in many areas of psychology. In bereavement research, several recent empirical studies have been completed with the help of the Internet. For example, quantitative and qualitative analyses of on-line memorials were done by Nager & de Vries (2004); bereavement listservs were monitored and analyzed by Capitulo (2004) and Hollander (2001); and participants were recruited and interviewed via the Internet by Hollander (2001) and Nager & de Vries (2004). In addition, an Internet-based treatment approach for bereaved individuals was presented by Wagner, Knaevelsrud, & Maercker (2006). Unfortunately, none of the abovementioned grief studies explored if and how the use of the Internet affected their methods and findings. With the increased popularity of the Internet-survey method, the validity and reliability of the Internet use in grief studies must be assessed. The purpose of Study 4 is to review the use of the Internet in bereavement research and to examine the reliability and validity of on-line data collection. Study 4 will also consider whether grief surveys administered via the Internet yield results comparable to the traditional paper-and-pencil survey method.

Research via Internet

Previous research articles have addressed positive and negative aspects that are important to consider when a researcher chooses the Internet as a research tool. The Internet methodology attracts researchers' attention due to its global coverage, speed and inexpensiveness; it has a benefit of reaching people from around the world very quickly and without significant operating costs. The positive aspects also include a potential for greater anonymity and, therefore, a greater psychological perception of privacy for the participants. Research has demonstrated that people tend to be more open about sensitive issues in virtual space (Wagner, Knaevelsrud, & Maercker,

2006). The participants can access the information at their convenience and they might feel less situational demand to complete a study that is uncomfortable or unrewarding (Kraut, Olson, Banaji, Bruckman, Cohen, & Couper, 2004; Nosek, Banaji, & Greenwald, 2002). The Internet study can be dynamic and interactive, allowing for as much time as needed to complete a survey. In addition, the technology can provide automatic data entry and storage, so that the technical cost and errors related to manual data entry can be avoided (Epstein, Klinkenberg, Wiley & McKinley, 2001; Evans & Mathur, 2005; Kraut et al., 2004).

At the same time, there are several important concerns regarding Internet methodology. These include generalizability of the results, security of the information and ethical responsibilities of the researcher. Participants in an Internet study are self-selected and limited to those people with computer and Internet access, thereby potentially presenting a population skewed toward younger age and higher socio-economic and educational status (Pettit, 1999; Stanton, 1998). In addition, participants are unmonitored, which might result in the use of fictitious personalities with false age and gender (Kraut et al., 2004; Riva, Teruzzi, & Anolli, 2003). Further, in an Internet study, there is a real possibility that the data will be received by a third party (Nozek & Banaji, 2002).

The physical absence of the researcher during the Internet study places limits on the use of assessment tools and generalizability of the results. As noted by Ruiz et al. (2002), “the validity of many instruments could be seriously threatened when a patient has information that could be used to manipulate his or her performance” (p. 294). Thus, the use of more sensitive diagnostic clinical tests via the Internet can be dangerous and ineffective. In addition, most of clinical and research methods were standardized for the use a face-to-face or paper-and-pencil

format. This raises a question of validity and reliability of the standard methods when used in the Internet format (Epstein, Klinkenberg, Wiley & McKinley, 2001; Riva, Teruzzi & Anolli, 2003).

Issues in the Online Bereavement Research

When conducting grief research online, two main issues accrue paramount importance. First, research with a vulnerable population brings additional demands to the Internet method of data collection. Conducting grief research online affects the actions that a researcher can take to ensure participants' welfare; it changes the nature of the risks and the investigator's ability to assess them (Kraut et al., 2004). Second, the reliability and validity of the data collected are unknown and therefore have to be examined. It is a common concern that the format of the research (e.g., paper-and-pencil versus Internet) might influence or bias the data obtained (e.g., Epstein et al., 2001; Riva, Teruzzi & Anolli, 2003). There are two questions that arise when comparing Internet and traditional methodologies: (1) are the samples obtained by the Internet survey and by traditional paper-and-pencil methods similar in their demographic and clinical characteristics, and (2) are the psychometric characteristics of the data equivalent? Thus, the second study will examine methodological issues in bereavement research, the reliability and validity of online data collection, and the evidence that grief surveys administered via the Internet will yield results comparable to a traditional paper-and-pencil survey method.

Ethical and methodological issues. There are no official guidelines for Internet research; however, several recommendations have been offered regarding web ethics (Keller & Lee, 2003; Kraut et al., 2004; Nosek et al., 2002; Pittenger, 2003). The basic ethical principles underlying research involving human subjects include privacy and confidentiality, free and informed consent, minimal risk for the participants, and the professional integrity of the researcher (CPA, 2000). The privacy and confidentiality of the participants is easier to achieve in Internet research

due to the lack of physical contact and limited identifiable information. It is generally accepted that open web-based communications (for example, online discussions or memorials) fall in the public domain and do not require consent for use in research (Capitullo, 2004; Keller & Lee, 2003). However, researchers have the responsibility to minimize the chance of an identity breach. Seemingly anonymous conversations can be tracked down to individual Internet users, creating an identity breach. Therefore, researchers are advised to remove the reference to the individual's name or pseudonym, particularly as it applies to a direct quotation (Kraut et al., 2004) and seek permission from a community moderator to examine exchanges among the members (Pittenger, 2003). From the experience of conducting this study, the majority of the grief support websites moderators indicated that, since these sites involve vulnerable individuals, the moderator should be contacted in order to get permission to use their members as participants. Moderators also requested information about the study and the institution's ethical approval before permission was given to access their website.

Consent is an essential part of research in psychology. In Internet research, private e-mails or direct survey responses are confidential and require consent for use in the study (Capitullo, 2004). Informed consent in research generally covers issues of confidentiality, risks, and purposes of the study, making sure that the participants have all the related information before they agree to participate. However, in Internet research, the identity of the persons giving consent cannot be verified, which can undermine the entire process and create problems if the respondents are minors or have limited cognitive capacity (Keller & Lee, 2003). The ability to consent to participation in a study has also been previously questioned by bereavement researchers because of the emotional state of recently bereaved or traumatized people whose decision-making and judgment might be affected by emotions. Beck and Konnert (2005)

reported that half of the grief survey respondents felt that they were not in a condition to consent in the days and months after the death. However, others point to the positive effect from research participation through sharing their experience and helping others (Cook, 2001). In particular, one Internet participant in the present study wrote, "I am starving to hear my son's name and for people talking to me about him." Another participant echoed that the study "allows me to continue to talk about my kid." Overall, it is important to review carefully the websites for their suitability for the research. It is also helpful to receive feedback from website moderators regarding the study. From the present experience, most moderators were very knowledgeable about their community members and were protective of their interests and feelings.

The ethical responsibility to minimize risks and alleviate possible harmful effects for the research participants creates challenging issues in Internet research. Participation in an online survey can bring additional distress to vulnerable people. Because online research participants cannot be seen, the cues of distress are likely not received by researchers, making it more difficult to assess reactions to the research experience (Kraut et al., 2004). The ability to intervene is limited in the case of a harmful effect of the study. It might be difficult not only to manage a psychological crisis online, but also to respond to this crisis in a timely way (Wagner, et al., 2005). Therefore, to minimize the possible risks, ethical review boards and peer reviews ought to make sure the study does not bring additional distress. Because of these concerns, the study has to be thoroughly explained to the participants and the possibility to preview the questions and withdraw at any time should be provided (Keller & Lee, 2003; Kraut et al., 2004). To ensure that participants have the contact information for the researchers, Keller & Lee (2003) have suggested encouraging participants to print the informed consent page with contact information before continuing with the study.

Debriefing is one of the methods to protect participants. Without the immediate presence of a professional, proper debriefing of participants following the completion of the study is an important element to help alleviate the distress. A debriefing form must be accessible not only for those who have completed the survey, but also for those who withdraw from the study (Nosek et al., 2002).

Maintaining the professional integrity of a psychologist is crucial on the web. This includes alleviating the potential for misunderstanding, providing accurate and up-to-date information that is evidence based, and maintaining the confidentiality of professional information (Clark, et al., 2004; Ruiz et al., 2002). To maintain the security and appropriate use of the assessment methods, researchers have to evaluate carefully the material that is posted for wide attention and make sure that the information cannot be used to undermine the validity of the future research, assessment or treatment (Ruiz et al., 2002).

To summarize, there needs to be an increased awareness among the researchers regarding the danger of unethical and harmful use of the Internet for the research purposes. Harmful use includes unintended identity breach, unverified consent and the difficulty in assessing and intervening in the event that distress is caused by participation in the study. To minimize the risks, ethical review boards, peer reviews and support from websites moderators should be sought. Participants have to be encouraged to keep the contact information for the researchers.

Reliability and validity of Internet research. The psychometric validity and reliability of the data obtained through Internet research is another concern. Since study participants in Internet research are unmonitored and “virtual,” and the researcher has only limited control over the information collected, the generalizability of the results have been questioned by many researchers (e.g., Meyerson & Tryon, 2003; Riva et al., 2003; Stanton, 1998). Another concern is

that the format of the research (e.g., paper-and-pencil versus the Internet) might influence or bias the data obtained. Two main questions arise when comparing Internet and traditional methodologies. First, due to financial, technical, and educational limitations of the computer and Internet access, the samples obtained by the Internet survey and by traditional paper-and-pencil methods may not be similar in their demographic and clinical characteristics and, therefore, may not be representative of the general population. Second, since most psychological measures are validated using traditional paper-and pencil methods, questions emerge regarding the psychometric equivalency of the measures completed via Internet.

Rationale for Study 4

The recent literature has demonstrated an increased interest in using the more convenient, inexpensive and rapid Internet method to collect data and recruit the bereaved participants. The community of bereaved people on the web is growing. For many people the Internet provides a virtual place to meet, share their stories, and feel accepted and understood. For researchers, it offers a possibility to learn more about grief and provide participants with the opportunity to help others through sharing their experience (Nager & de Vries, 2004).

The reliability and validity of Internet research is an important concern as the format of the research (e.g., paper-and-pencil versus Internet) might influence or bias the data obtained. This issue was addressed in the second study. In particular, the results of paper-and-pencil questionnaires submitted to a sample of bereaved people are compared with the results obtained from posting the same questions on the Web. The second manuscript of this dissertation examines reliability and validity of online data collection. It also assesses whether a grief survey administered via the Internet yields results comparable to the traditional paper-and-pencil survey method.

SECTION B: Emotional Functioning and Meaning Making in Grief (Studies 1, 2 & 3)

(Manuscript invited for resubmission to *Death Studies* following revisions suggested by the reviewers)

Abstract

Emotional awareness, expression, and regulation have been traditionally considered an important aspect of grieving (Pennebaker, 1990; Raphael, 1983). Also, it has been demonstrated that people who were able to find meaning in their loss experience showed better adjustment and were less likely to develop grief complications (Davis, Wortman, Lehman, & Silver, 2000; Tolstikova, Fleming, & Chartier, 2005). The emotionally focused approach to human functioning (Greenberg, 2004) has stated that emotional arousal, awareness, expression, and regulation provide ground for meaning construction. Using Greenberg's approach, the present study examined the relation between emotional processing and meaning making in grief. Following Greenberg's conceptualization (Greenberg, Auszura, & Herrmann, 2007), the study proposed productive and unproductive emotional grief functioning. The *Productive – Unproductive Grief Processing Questionnaire* (PUG) was developed and its' validity was established. Study 1 of the present paper demonstrated a two-factor structure of the PUG and established the scale's internal consistency and short-term temporal stability. In Study 2, the PUG was evaluated in its relation to other measures of coping and emotional functioning in order to establish convergent and discriminant validity of the scale. In Study 3, emotional functioning scores, as well as productive and unproductive grief coping scores, were used to predict sense making, benefits finding and positive change in bereavement. The results showed that people who reported more unproductive feelings associated with their loss were less likely to report any meaning, positive changes or self

benefits that came about as a result of the loss experience. In contrast, the productive scores were found to positively predict sense making and positive change six months later.

Introduction

People cope with grief in many different ways. Some coping journeys lead to re-adjustment and new beginnings; others get stuck in hopelessness and despair. Many researchers have attempted to identify factors and variables that predict a better outcome and allow for identification of bereaved people who cope adaptively versus those who do not (Keesee, Currier, & Neimeyer, 2008; Michael & Snyder, 2005; Parker & McNally, 2008). Traditionally, the importance of emotional processing of grief has been unequivocal and encompassed in the broader notion of “grief work” (Bowlby, 1980; Freud, 1917/1957; Lindeman, 1944). However, more recent studies have questioned this assumption and demonstrated that avoidance of pain and repressive coping style can be more adaptive than immersion in painful feelings and rumination (Bonanno, Keltner, Holen & Horowitz, 1995; Michael & Snyder, 2005).

Other models, such as the cognitive constructivist paradigm, suggest that bereaved individuals must reflect on their loss, search for and then find meaning in the loss, in order to assimilate their experience into their worldview and their view of themselves (Davis 2001, Neimeyer, 2000). Numerous studies have demonstrated that people who are able to find meaning in their loss experience show better adaptation (Davis, Wortman, Lehman & Silver, 2000) and are less likely to have psychological trauma, complicated grief, and impaired self-reference (Keesee et al., 2008; Tolstikova, Fleming, & Chartier, 2005). Furthermore, researchers have identified several aspects of meaning making, such as making sense of the loss, finding benefit for the self, and posttraumatic growth (Davis, 2008; Davis, Nolen-Hoeksema, & Larson, 1998; Keesee et al., 2008; Michael & Snyder, 2005). Each of these aspects was found to have distinct

predictors and outcomes. For clarity, this paper will use the expression “meaning making” as a general term encompassing three aspects of meaning (i.e., sense making, benefits finding and positive change). The term “sense making” will be used to describe an attempt to make some spiritual or philosophical sense of why a death has occurred. Sense making is commonly associated with characteristics of the loss such as relationship to deceased, time since loss, and cause of death (Gilles & Neimeyer, 2006; Davis & Nolen-Hoeksema, 2001). The term “benefits finding” will be used to describe a subjective experience of positive growth, such as reordering life’s priorities or getting closer to surviving loved ones. Previous research found that the only predictors of benefit finding were personality factors of the bereaved individual, such as degree of optimism or pessimism (Davis & Nolen-Hoeksema, 2001). Some research findings demonstrated that benefits finding predicts improved recovery in the long run compared to sense making (Davis et al., 1998), whereas others show that failure in sense making is the most significant predictor of grief severity (Keesee et al., 2008). Finally, the third aspect of meaning, the survivor’s posttraumatic growth or “positive change” will be used in this study to describe the shifts in personal story that happened as a result of the experience (Michael and Snyder, 2005). In previous research, the posttraumatic growth has been predicted by the personality factors of optimism, extraversion, and openness to internal experience (Tedeschi & Calhoun, 1996) and environmental factors of social, family, and community support as well as a stress-free posttrauma environment (Schaefer & Moos, 1998).

The majority of the grief coping theories have tended to examine either grief feelings or meaning reconstruction of the experience. Keesee and colleagues (2008) questioned whether both meaning making and grief could be the result of a third factor, such as, for example, emotional regulation. In all areas of psychological research, it is increasingly recognized that

emotion processing and cognitive processing intertwine and enhance each other. For example, Greenberg (2002) stated that emotional arousal, awareness, expression, and regulation provide the opportunity to reappraise the situation, reassess the experience, and create a new meaning of the event. Well-accomplished emotional processing is believed to generate a new sense of personal experience, provide ground for meaning construction, and eventually help to assimilate a shattering life event, such as the death of a loved one.

Greenberg's emotional processing theory forms a theoretical framework for this study (Greenberg, 2002). Specifically, it is conceptualized in this study that bereaved individuals who tend to focus on their emotions (that is, have high emotional awareness, tend to express their feelings, and have good emotion regulation abilities) will be able to process grief more successfully. They will also make sense of their loss and/or experience benefits through assimilation of the shattering experience, compared to people who are less emotionally focused.

Not all emotional processing is viewed as productive (Greenberg et al., 2007). For example, several studies have demonstrated that rumination about painful experience is counterproductive (Nolen-Hoexema, Parker & Larson, 1994; Michael & Snyder, 2005). In contrast, general long-term benefits were associated with minimizing negative events and avoiding emotional pain rather than immersing in it (Bonanno, Znoj, Siddique, & Horowitz, 1999). Research has demonstrated that repressive coping and emotional avoidance during bereavement may serve an adaptive function and allow for "dosing" or regulating emotional pain of a loss (Bonanno, Keltner, Holen, & Horowitz, 1995; Parker & McNally, 2008; Shuchter & Zisook, 1993; Stroebe & Schut, 1999).

For the purpose of better predicting therapeutic change, Greenberg distinguished between emotional functioning that is productive and leads to change, and unproductive emotional

functioning that leads to stagnation or disturbance (Greenberg, 2004; Greenberg et al., 2007). In psychotherapy, a client is in a productive emotional state - in terms of a successful emotion processing – when he or she experiences a primary adaptive core emotion. Core emotions are fundamental states for which the adaptive value is clear, such as sadness at loss or fear at threat. In Greenberg's view, primary adaptive emotions have a biological origin and represent an initial or fundamental response to an event or experience. In addition, a person is in a productive emotional state when he or she is aware of the emotion and able to express it without being “stuck” in it. The person is not overwhelmed by the emotion and takes responsibility for his or her feelings, that is, does not take a “victim” stance. Productivity, therefore, has several components: emotion has to be primary (i.e., related to the basic survival issues), a person has to be aware of his/her emotional experience, take responsibility for the feeling, and be able to move forward and transform the feeling without being stuck.

In contrast, an unproductive emotional state is characterized by a weak, negative sense of self, feeling like a victim, experiencing unregulated emotions (such as feeling overwhelmed and dissociated), being stuck, experiencing a fear of losing control, and feeling worthless and insecure. Unproductive emotions are also associated with the experience of primary maladaptive or secondary emotions. Primary maladaptive emotions are those primary emotional responses that became dysfunctional through pathogenic personal history, for example, the fear associated with different types of phobias or fear of touch, shame at expressing oneself, and feelings of worthlessness or insecurity. These emotions were initially adaptive (for example, learning to fear closeness because it was associated with abuse, or feeling shame at self-expression because it caused humiliation), but they function maladaptively in the changed (different) circumstances. Secondary emotions are reactions to identifiable, more primary emotional or cognitive processes.

They can be the secondary response to primary emotional responses, such as expressing secondary anger when feeling primarily afraid, as is evident in the sex-role stereotypical behaviour of men, or crying when primarily angry, as in the sex-role stereotypical behaviour of women, or secondary responses to cognitive processes, such as feeling depressed when thinking about failure (Greenberg & Paivio, 1997).

To differentiate between productive and unproductive emotional processing in psychotherapy, Greenberg and colleagues developed a productivity rating scale and tested how productivity of emotion expressed in therapy is related to outcome. The productivity of emotion was found to be associated with therapeutic change (Greenberg, 2004; Greenberg et al., 2007).

The present study examined how productivity of emotional processing in grief is related to meaning making. The Productive – Unproductive Grief Processing Questionnaire (PUG) was developed and the relation between emotional functioning and meaning making in grief was examined in three studies. Study 1 examined the construction and psychometric properties of the Productive-Unproductive Grief Processing questionnaire, administered to a group of bereaved adults who had suffered the loss a loved one. The factor-structure, internal consistency, and short-term temporal stability were analyzed. In Study 2, the PUG was evaluated in relation to other measures of coping and emotional functioning in order to establish convergent and discriminant validity of the scale. In Study 3, emotional functioning in general, as well as productive and unproductive emotional grief coping, were used to predict sense making, benefits finding and positive change.

Participants

Data were obtained from 315 bereaved individuals who had suffered the death of a loved one at some time in their life. Approximately one third of the participants lost a child, one third

of participants lost a spouse, and the remaining part of the losses included parent, sibling, grandparent, friend, fiancé or other relative. A subsample of a 102 participants from the total group completed the study twice in the period of 6 months. This provided an estimation of temporal stability and predictive validity for the PUG and allowed to obtain a process-oriented outlook on the relation between emotional functioning and meaning making. Demographic characteristics of the total group and the subsample are shown in Table 1.

-----Insert Table1-----

Procedure

Data for the studies were collected through an online survey that was posted on the World Wide Web (Tolstikova & Chartier, 2009-2010). Participants were solicited through notices placed on several grief support websites. An introductory e-mail with the study description was sent to the moderators of the websites who were asked to post the introduction letter and a survey link on their message boards for the attention of the website members. Interested individuals clicked on the survey link, which allowed them to enter the website specifically created for the purpose of this study, review the introduction to the study, and complete the consent form. The consent form included a brief description of study goals, an assurance of confidentiality, as well as the researchers' contact information. Once participants had consented to participate by clicking a "Consent" button, the survey, which was composed of several research questionnaires and a set of demographic questions, appeared on the screen. Upon completion of the survey, participants were presented with a "Submit" button. Once all the survey sections were submitted, a "Thank you" letter appeared on the screen. Participants were also encouraged to participate in a follow-up survey. By clicking on the "Request to follow-up" button and providing their e-mail addresses, the participants were automatically added to the

follow-up list, and these people were contacted six months later to repeat the survey. The participants were free to exit the study at any point by pressing a “Withdraw” button on the screen.

Study 1: Scale Development, Examination of the Factor Structure, Internal Consistency and Temporal Stability of the PUG

Measures

Productive-Unproductive Grief Processing (PUG). The first step in constructing this scale was to generate items in two domains: productive emotional processing and unproductive emotional processing. Forty-two items were generated by the authors on the basis of consultations with Dr. Greenberg and discussions with experts in grief. In addition, the authors reviewed the existing grief scales such as Texas Revised Inventory of Grief (Faschingbauer, Zisook, & DeVaul, 1987), the Grief Experiences Inventory (Sanders, Mauger, & Strong, 1985), the Hogan Grief Reaction Checklist (Hogan, Greenfield, & Schmidt, 2001), the Core Bereavement Items inventory (Burnett, Middleton, Raphael, & Martinek, 1997), and the Inventory of Complicated Grief (Prigerson, Kasl & Jacobs, 2001). The review of the existing grief scales allowed selecting the most fitting scale format and inspired some of the PUG items.

The questions that compose productive emotional processing of the PUG were based on the definition of productive emotions. According to Greenberg and colleagues (2007), a client is in a productive state, in terms of a successful therapeutic process, “when he/she experiences a primary core emotion in a contactfully aware manner without being stuck in it or being a passive victim of the emotion” (Greenberg et al., 2007, p. 484). Consequently, the productive domain of the PUG encompassed items reflecting feeling of pain at the loss of a loved one, as well as

positive and warm memories and feelings about the deceased. For example, “I feel sad and longing for him/her” and “I remember the good parts as well as the difficult parts of our time together.” To reflect the emotional expression of grief, the following “social sharing” questions were added: “I feel that I can share my grief with other people” and “I feel that I can put my grief into words.”

The questions that composed unproductive emotional processing in grief were based on the definition of unproductive emotions and characterized by a weak, negative sense of self, having a victim stance, feeling stuck, fear of losing control, feeling worthless, feeling insecure, and the experience of secondary emotions, such as anger or guilt associated with the loss. The unproductive grief domain of the PUG included feelings of helplessness, hopelessness, anger, guilt, and loss of control. For example, “I blame myself for his/her death,” “I feel that my life is useless without him/her” and “I feel overwhelmed with grief.” The unproductive emotional expression of grief was reflected in the questions like “I feel numb when I try to express my grief” and “I feel that I cannot speak about my grief.”

Responses were rated on a 5-point scale. Participants were asked to indicate how often the items apply to them, with responses ranging from 1 to 5 where 1 is “Almost never” (less than once a month) and 5 is “Always” (several times a day).

Results and Discussion

Factor structure of the PUG. Exploratory factor analysis was used to provide preliminary data on the factor structure of the PUG and to identify the underlying dimensions of the scale. Because of the relatively large number of participants and low number of missing values ($n = 9$), for this analysis, missing values were excluded listwise. Prior to conducting the factor analyses, the response distributions of all individual PUG items were examined. Tests for normality,

homogeneity of variance, skew and kurtosis were all in the acceptable range (Tabachnick & Fidell, 2007).

Exploratory factor analysis with factor extraction using the Kaiser-Guttman rule (criterion of eigenvalues > 1.00) resulted in the identification of 5 factors while Cattell's (1966) Scree plot criteria identified 3 factors. Both orthogonal and oblique solutions were examined for 2, 3, and 5 factors. The results that appeared to show a solution that best fit the criteria of simple structure (Thurstone, 1947), as well as the solution that corresponded best with the theoretical conceptualizations, was the principal axis extraction with varimax rotation for 2 factors (see Table 2). This solution accounted for 53.5% of the variance and resulted in no items with a factor loading below 0.30 (Gorsuch, 1983), 40 singlets, and two doublets. After excluding the doublets (items 1 and 23), 25 items loaded on Factor 1 (pattern coefficients ranging from .56 to .87), and 15 items that loaded on Factor 2 (pattern coefficients ranging from .47 to .76). See Table 3 for the eigenvalues and percentage of variance accounted for by the two factors initially and upon extraction.

-----Insert Table 2-----

-----Insert Table 3-----

Consistent with the theoretical conceptualization, the two factors comprising the PUG were highly and substantively interpretable. Factor 1 was labeled "unproductive grief processing." It comprised the items that reflect feelings of helplessness, hopelessness, anger, guilt, and loss of control. Factor 2 was labeled "productive grief processing." It was composed of the items reflecting positive memories and feelings about the deceased, as well as social sharing of grief feelings. As expected, the unproductive and productive factors were not correlated with

each other ($r = -.07, p = 0.26$), providing empirical support for a two-dimensional conceptualization of emotional functioning in grief.

Internal consistency. Internal consistency values for each subscale of the PUG across both samples of participants were estimated using Cronbach's alpha. Results showed excellent internal consistency values for each of the PUG subscales (Table 4). Cronbach's alpha for each of the subscales did not increase with the deletion of a single item.

-----Insert Table 4-----

Temporal stability. Test-retest reliability was examined by correlating the PUG subscales' scores at two time periods approximately six months apart. Results demonstrate that the temporal stability of the unproductive score was the strongest in terms of the magnitude of the correlation ($r = 0.84; p < 0.00$), followed by the productive score ($r = 0.76; p < 0.00$). Test-retest reliability coefficients were statistically significant even with the relatively small sample size.

Descriptive Statistics.

The remaining 40 items were subjected to descriptive statistical procedures for each individual factor. The composite PUG score was not part of the analyses because the factors do not correlate with each other, and, therefore, the composite score is not meaningful. For the descriptive statistics, missing values were not excluded in a listwise manner, but rather in an analysis-by-analysis manner. The mean productive PUG score for the total group was 49.2 ($SD = 12.2$), whereas the mean unproductive score for the total group was 70.9 ($SD = 25.9$). The mean scores for men and women did not differ significantly across the two factors (t productive (1, 286) = 2.44, $p = 0.12$; t unproductive (1, 280) = .06, $p = 0.81$).

Time since loss. The analysis of the relation between time since loss and the PUG factors revealed a significant negative correlation between the time since loss and the unproductive factor ($r = -.32, p = 0.01$), indicating that longer time elapsed since the loss is associated with a decrease in unproductive emotional processing. The productive factor did not correlate with the time since loss (see Table 5). Supporting the clinical and research descriptions (e.g., Prigerson & Maciejewski, 2008) and the stage theory of grief ((Bowlby, 1980; Kubler-Ross, 2005), the recent loss was found to be associated with increased guilt, anger, and loss of control. The recent study by Prigerson & Maciejewski (2008) demonstrated that anger, bitterness and disbelief are the most common reactions during the first four months following the loss and gradually decline by the end of the second year post-loss. They argued that while anger, disbelief, sadness and yearning declined over time, emotional acceptance increased. This statement did not find empirical support in the present study. While unproductive emotional processing correlated with the time elapsed since death, the productive emotions did not significantly correlate with time since loss. This finding might question Greenberg's (2004) belief that positive emotions "undo" negative emotions, the present findings indicate that productive and unproductive emotional processes proceed independently. In grief, the unproductive emotions do not appear to be replaced with the productive ones but rather seem to lose their intensity with time.

-----Insert Table 5-----

Age and marital status. The relation between the PUG factor scores and the marital status of the participants was examined. A significant difference was found between the productive scores depending on marital status (F productive (3, 284) = 5.8, $p = 0.001$) and no difference between the unproductive scores in relation to marital status (F unproductive (3, 278) = 0.85, $p = 0.45$). The one-way ANOVA with Bonferroni pairwise comparisons revealed that single people

have significantly lower productive scores than married/common law participants and widows/widowers. Further, the Pearson correlation demonstrated that the age of the participant was significantly positively correlated with the productive factor and negatively correlated with the unproductive factor.

Taken together these results indicate that older individuals, who are also more likely to be either married or widowed, tended to experience more productive feelings associated with their loss than younger single individuals. Older people were also less focused on unproductive feelings such as anger, guilt, and loss of control. Accordingly, younger and single individuals experienced less productive and more unproductive emotions after the loss of a loved one. This result might be explained by wisdom commonly associated with older age and greater life experience, as well as possibly greater social support from the family and society for older people (Stroebe, Stroebe, Abakoumkin & Schut, 1996). Another explanation could be the fact that loss of a spouse at older age can be more expected and, as a result, less traumatic (Sanders, 1993). This finding has important implications for younger single people, who are therefore at greater risk for developing unresolved grief or other complications. Therapeutic interventions for younger single people should be focused on processing negative, unproductive feelings and bringing in positive, productive experiences and developing the ability to share feelings with others.

Relationship to deceased. The association between the PUG subscales and the relationship to the deceased was examined using a one-way ANOVA. The between-groups analyses were significant for productive and unproductive factors (F productive (6, 281) = 2.75, $p = 0.02$; F unproductive (6,275) = 2.61, $p = 0.02$). The Bonferroni pairwise comparisons revealed that people who lost a child had significantly higher unproductive scores when

compared to those who lost a grandparent or a grandchild. This finding is consistent with previous research indicating that bereaved parents have higher grief scores when compared to other groups (Burnett, Middleton, Raphael, & Martinek, 1997; Sanders, 1993). In addition, consistent with the above findings, participants who lost their spouses (i.e., widows and widowers) reported the highest productive emotions when compared to other groups. People who lost a distant relative reported the lowest productive and unproductive scores; however, the pairwise comparisons with this group were not significant.

Cause of death. The one-way ANOVA with Bonferroni pairwise comparisons revealed that participants who lost a loved one due to an accident had significantly higher unproductive scores than participants who lost a loved one due to old age (F unproductive (6, 275) = 2.34, p = 0.03). This finding is an expected result in light of previous research that demonstrated the traumatic nature of the accidental loss of a loved one (Tolstikova et al., 2005). Despite large mean differences between the scores, no other significant differences were found. However, the differences between the scores were in a meaningful direction. Highest unproductive scores were reported by people whose loss was sudden and out of control (e.g., accident or miscarriage/stillbirth). Highest unproductive scores were also reported by those participants who did not know the cause of the death. For the latter, the death was commonly very recent, and this might have played a role in unproductive scores. The lowest unproductive scores were reported by participants who lost a loved one due to older age, an event that might be more expected to occur. There was no other significant difference between the productive scores in relation to the cause of death (F productive (6, 281) = 1.8, p = 0.9).

Overall, the analyses of demographic characteristics associated with productive and unproductive emotions are cross-validating and can be summarised in the following statement:

productive emotions are more common among older people who lost a spouse due to expected conditions (such as illness), whereas the unproductive emotions are more frequent among younger participants who lost a loved one, especially a child, in a sudden accident. The results demonstrate that emotional grief functioning is not a homogeneous process that is typical for every bereaved individual, as it was conceptualized in the theory of “grief work” (Bowlby, 1980; Freud, 1917/1957; Lindeman, 1944). The study findings show qualitative differences in the way survivors cope with their losses, depending on their loss history, and social and demographic factors.

Study 2: Examination of Convergent and Discriminant Validity of the PUG

Content validity of the scale includes convergent and discriminant validity. Convergent validity involves correlations with theoretically relevant psychological constructs, whereas discriminant validity implicate lack of significant correlations with unrelated constructs. Correlations that fit an expected pattern contribute to the evidence of construct validity of the scale. The concept of productive-unproductive emotional processing in grief encompasses several psychological constructs including grief, emotional processing and coping. In order to establish the construct validity of the PUG, its relation with the measures of grief, emotional functioning and different coping strategies were examined. It was expected that the PUG would correlate significantly with a measure of grief because both unproductive and productive subscales of the PUG are measures of grief reaction to a loss experience. The unproductive emotional functioning encompasses distressing feelings of grief frequently tapped by the majority of grief scales, such as the feelings of being overwhelmed by loss, anger and helplessness in the face of the death of a loved one (Bowlby, 1973, 1980). The productive emotional functioning reflects loving memories about the deceased and social sharing of grief.

These aspects of grief experience are also commonly described in the literature as part of “normal” grief experience (Calhoun & Tedeshi, 2001; Davis, 2001; Frantz, Trolley, & Farrell, 1998) but have not yet been reflected in grief scales. It was expected that both PUG factors would significantly and positively correlate with a measure of “normal” or uncomplicated grief.

Further, the productive and unproductive emotional processing subscales were expected to correlate significantly with other measures of emotional processing. According to Greenberg (2004), emotional processing includes three major components: emotional awareness, emotional expression and emotional regulation. Awareness of what one feels has been a recognized principle of change (e.g., in gestalt therapy) and has been seen as an important therapeutic goal (Perls, Hefferline & Goodman, 1951). The adaptive functions of emotional regulation and expression have received empirical support (Pennebaker, 1990), whereas alexithymia – difficulty in identifying and expressing emotions – was found to associate with adverse health conditions (Bagby, Parker, & Tylor, 1994a). The PUG’s productive and unproductive factors incorporate all three aspects of emotional processing. For example, both productive and unproductive factors include questions reflecting emotional awareness (“I feel guilty when I think about him/her” or “Memories of him/her create a warm feeling”), emotional regulation (“I feel stuck in my pain,” “I cannot accept his/her death” or “I feel that I have taken in the good parts of what we had”), and emotional expression (“I feel that I can put my grief into words” or “I feel that I cannot speak about my grief”). It was, therefore, expected, that both of the PUG subscales would significantly correlate with the measures of emotional awareness, emotional expression and emotional regulation.

Coping is another psychological construct related to the PUG scale. The PUG examines aspects of emotional coping triggered by the death of a loved one. As a measure of coping, the

PUG was expected to correlate significantly with the emotional coping strategies measured by a coping scale. It was further expected that the productive and unproductive factors will show a differential pattern of correlation with the adaptive and maladaptive coping strategies (Carver, Scheier, & Weintraub, 1989). The productive scale was expected to correlate positively with adaptive coping strategies and negatively with maladaptive coping strategies. Consequently, the unproductive scale was expected to correlate positively with maladaptive coping strategies and negatively with adaptive strategies.

Measures

In addition to completing the PUG, the 315 participants described in Study 1 completed the following measures.

Core Bereavement Items Inventory (CBI). The CBI (Burnett, Middleton, Raphael, & Martinek, 1997) is an instrument for measuring core bereavement phenomena. The three subscales of CBI tap frequently experienced bereavement phenomena such as preoccupation with images and thoughts about the deceased, acute separation, and grief feelings. Each item is rated on a four-point Likert scale ranging from “Always” (“Continuously,” “A lot of time”) to “Never.” The reliability of the test measured by Cronbach’s alpha is 0.91. Construct validity was initially demonstrated by factor analysis. The CBI discriminated between bereaved parents, bereaved spouses, and bereaved adult children, where bereaved parents had the highest grief scores and bereaved adult children had the lowest. Middleton, Raphael, Burnett and Martinek (1997) demonstrated that the total CBI score was significantly correlated with anxiety, depression, and neuroticism. Tolstikova et al. (2005) reported positive correlations among CBI, trauma, and complicated grief. Overall, CBI was named as the best-suited measure to study

“normal” grief responses due to its focus on “core,” uncomplicated, bereavement phenomena (Neimeyer & Hogan, 2001).

Toronto Alexithymia Scale (TSI). The TAS-20 (Bagby et al., 1994a) is a measure of emotional awareness and emotional expressivity. TAS-20 is a multidimensional instrument, incorporating three factors that reflect the following constructs: (a) difficulty identifying emotions and distinguishing them from bodily sensations, (b) difficulty describing emotions to others, and (c) an externally oriented style of thinking. TAS-20 is a self-report measure comprised of 20 items. Each item is rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The TAS-20 has demonstrated acceptable internal consistency in derivation, student, and psychiatric samples (Cronbach’s alpha in derivation sample = 0.81). In addition, the three factors in the derivation sample had satisfactory internal consistency ($F1 = 0.78$, $F2 = 0.75$, $F3 = 0.66$). The test-retest reliability was 0.77. The homogeneity of the TAS-20 was confirmed by the sufficient mean interitem correlation coefficients recommended for multifactor scales (Bagby et al., 1994a). TAS-20 was found to correlate negatively with self-assessment measures of emotional intelligence (Parker, Taylor & Bagby, 2001), psychological mindedness, and openness to feelings (Bagby, Taylor & Parker, 1994b). It was also shown that the TAS-20 correlated positively with measures of negative affect and negatively with measures of positive affect. However, it was demonstrated that self-assessed alexithymia is not simply a function of degree of depression (Lundh, Johnsson, Sundqvist & Olsson, 2002).

Difficulties in Emotion Regulation Scale (DERS). The DERS (Gratz & Roemer, 2004) is a 36 - item, self-report measure of difficulties in emotion regulation. It comprises six factors: Non-acceptance of emotional responses, Difficulties engaging in goal-directed behavior, Impulse control difficulties, Lack of emotional awareness, Limited access to emotion regulation

strategies, and Lack of emotional clarity. A participant is questioned about how often an item applies to him/herself and asked to respond on a five-point scale that ranges from “Almost never” to “Almost always.” The scale has demonstrated high internal consistency (alpha reliability coefficient = 0.93) and good test re-test reliability ($r = 0.88$). It showed convergent validity with a related measure of emotion regulation, Generalized Expectancy for Negative Mood Regulation scale (Catanzaro & Mearns, 1990) ($r = 0.69$) and a measure of emotional expressivity (Kring, Smith, & Neale, 1994) ($r = -0.23$). The authors noted that all constructs were statistically significant and in the expected direction. The authors also explored the predictive validity to demonstrate its clinical relevance and found that it was positively correlated with self-harm and partner abuse.

Emotional Approach Coping Scale (EACS). The EACS (Stanton, Kirk, Cameron, & Danoff-Burg, 2000) is a 16-item scale used to assess emotional coping. Its two factors include the Emotional Processing scale that measures active attempts to explore and understand one's emotions ("I work on understanding my feelings") and the Emotional Expression scale that assesses interpersonal and intrapersonal forms of expressing emotions ("I get my feelings out in the open"). Items are scored on a four-point response scale (from “I usually don't do this at all” to “I usually do this a lot”). The scale has demonstrated internal consistency for situational emotional processing (alpha reliability coefficient = 0.91) and emotional expression (alpha reliability coefficient = 0.91). Test-retest reliability was also established ($r = 0.78$ and $r = 0.74$), as well as convergent validity (between emotional processing and expression ranging from 0.47 to 0.57.) Coping through emotional expression was more related to dispositional qualities than emotional processing. Processing and expression also differed in their predictive validity,

supporting the notion that they are two distinct forms of emotional coping. The emotional coping scales were shown to be distinct from other forms of coping.

Coping (COPE). The COPE (Carver et al., 1989) is a multidimensional self-report measure of different coping strategies. It consists of 60 items, comprising 12 subscales. Each subscale of the COPE was shown to be an internally consistent measure of a coping strategy (Cronbach's alpha ranged from 0.45 for "mental disengagement" to 0.92 for "turning to religion") with high test-retest reliability on two different samples (r 's ranges from 0.46 for "suppression of competing activities" to 0.86 for "turning to religion"). As supported by factor analysis, the scale assessed relatively distinct and clearly focused aspects of coping. The majority of the items that were intended to comprise separate scales did load separately from each other as distinct factors. Convergent and discriminant validity of the COPE were demonstrated through the correlations with several personality measures and two measures of coping styles. The factor structure of the situational version of the COPE was found to be similar to the structure of the dispositional version, and the factors correlated in similar patterns.

Results and Discussion

Table 6 shows correlations between the productive and unproductive scores and the grief scores (CBI), as well as between the productive and unproductive scores and emotional processing scores (TAS-20, DERS, and EACS). Both the productive and unproductive emotional processing subscales significantly and positively correlated with the Core Bereavement Items Inventory. This result provides support for the convergent validity of the PUG as a grief measure. The significant positive correlation between the CBI and the productive subscale adds to the body of the research investigating positive aspects of shattering life events (Calhoun & Tedeshi, 2001; Davis, 2001; Frantz, Trolley, & Farrell, 1998).

-----Insert Table 6-----

There were also significant correlations between the productive and unproductive scales of the PUG and the emotional processing scales. These correlations were in the expected direction and provide evidence to the convergent validity of the PUG. The PUG subscales showed differential correlations with the different emotional processing scales. The unproductive emotional processing subscale positively correlated with alexithymia (TAS-20) and difficulty with emotional regulation (DERS); it negatively correlated with coping through emotional awareness (EACS). Thus, the unproductive emotional grief processing was associated with difficulty identifying, regulating, and expressing emotions. This concurs with the theoretical conceptualization of unproductive emotional processing as an unregulated emotional state embedded in a weak, negative sense of self and a stance of victim (Greenberg & Paivio, 1997; Greenberg, 2007; Greenberg et al., 2007). In contrast, the productive subscale was negatively correlated with the alexithymia and difficulty with emotional regulation scales, and positively correlated with coping through emotional awareness. The productive emotional processing scale of the PUG was therefore associated with emotional awareness, expression, and regulation, which fits well with the theoretical concept of the productive emotions as regulated, fluent, and symbolized in awareness (Greenberg & Paivio, 1997; Greenberg et al., 2007).

Next, correlations between the productive and unproductive subscales of the PUG with the COPE subscales were examined. The subscales of the COPE and their correlations with the PUG factors are presented in Table 7.

-----Insert Table 7-----

As expected, both productive and unproductive scales significantly and positively correlated with the focus on emotions and venting of emotions. This finding supports the

convergent validity of the PUG as a measure of emotion-focused coping. Providing support for the validity of the factor solution, the PUG subscales showed a differential pattern of association with other coping strategies. The unproductive subscale correlated positively with the maladaptive coping strategies (Carver et al., 1989) including denial, behavioural and mental disengagement, and substance use, and correlated negatively with the adaptive coping strategies, such as positive reinterpretation and growth, active coping, use of social support, humor, acceptance, and planning. This finding adds important support to the concept of unproductive grief functioning. Frequently, in recent publications, avoidance and disengagement have been named as more adaptive reactions to grief than emotional grief processing (Bonanno, et al., 1995; Parker & McNally, 2008). The present cluster of associations between unproductive functioning, denial, disengagement and substance use demonstrate that avoidant coping may be applicable only for people engaged in unproductive emotional processing.

The pattern of correlations between the productive subscale and the COPE was opposite to the unproductive subscale. The productive emotions correlated positively with the adaptive coping strategies, including positive reinterpretation and growth, active coping, use of social support, religious coping, suppression of competing activities, and planning. The productive subscale correlated negatively with the maladaptive coping strategies, such as behavioural disengagement and substance use. This pattern is consistent with the description of religious coping, social support and positive reinterpretation as associated with adjustment and assimilation/accommodation of the loss experience (Klass, 1992; Park & Cohen, 1993).

The support for discriminant validity of the PUG was attained by the lack of significant correlations between the productive and unproductive emotional processing and some unrelated coping strategies (DeVellis, 1991). The unproductive emotional processing did not correlate with

the religious coping, restraint coping and suppression of competing activities. The productive emotional functioning did not correlate significantly with mental disengagement, denial, humor, restraint, and acceptance. The lack of correlation between the productive coping and denial, humor or acceptance confirms that individuals who report productive feelings are not those who are avoiding their emotional pain. Neither have they “resolved” or accepted their loss.

Productive emotional functioning manifests more awareness and better regulation of the grief feelings.

Overall, the obtained correlations demonstrated that productive and unproductive grief processing are related to the survivors’ grief response and reflect individual differences in emotional functioning (i.e., emotional awareness, regulation and expression). Significant correlations of the PUG subscales with adaptive and maladaptive coping strategies confirm Greenberg’s idea that emotions can be adaptive and maladaptive (Greenberg & Paivio, 1997). The presented model of productive and unproductive grief functioning allows for the integration of other models of grief coping, such as avoidance of emotional pain (e.g., Bonanno, et al., 1995), and positive reinterpretation and growth (Frantz et al., 1998).

Study 3: Relations Between Emotional Functioning and Meaning Making in Grief:

Predictive Validity of the PUG

It is widely recognized that emotion processing and cognitive processing intertwine and enhance each other. According to Greenberg’s conceptualization, emotional processing is an integral part of meaning making (Greenberg, 2004). The experience of emotion alone does not lead to psychological change; how people make sense of their emotional experience and how they use it is what makes the difference (Greenberg, 2002). Greenberg emphasizes the

importance of processing the aroused emotion by symbolizing it, bringing it into awareness, and, reflecting on it. The symbolization of feelings is understood as an ability to reprocess emotion by labeling it or attaching words to feelings. This highlights the meaning of an experience and gives a person a sense of control over it. The capacity to symbolize an emotionally traumatic experience allows one to articulate it and, thus, to make sense of what previously was overwhelming and unspeakable (Greenberg & Paivio, 1997).

Previous research in grief has shown that just the arousal and expression of painful emotion does not reduce grief (Bonanno, et al., 1995). On the opposite, emotional avoidance and repressive coping during bereavement was seen to serve adaptive functions and allows regulating the emotional pain of a loss (Bonanno, et al., 1995; Parker & McNally, 2008; Shuchter & Zisook, 1993). Bonanno et al. (1995) demonstrated that the coping process that involves minimization or dissociation of awareness of unpleasant emotion associated with loss (“verbal-autonomic response dissociation”, p. 977) was associated with reduced grief six months later.

In order to test whether the experience and expression of emotions in grief is important, the current study examined the effect of emotional functioning (emotional awareness, regulation and expression) on meaning making after the loss of a loved one. Following the differentiations proposed by Davis (2008) and Gillies and Neimeyer (2006), meaning making was conceptualized in this study as a multi-faceted process. Gillies and Neimeyer (2006) and Davis (2008) recently summarized previous research in a model that involved three interrelated cognitive processes of (a) making sense of the loss, i.e. findings reasons or explanations for what has happened, (b) finding benefits, i.e., positive reappraisal of the event, and (c) integrating changes in identity, i.e., changes in the roles, sense of self, and social relationships. The present study hypothesized that bereaved individuals who tend to focus on their emotions, i.e., have high

emotional awareness, express their feelings and show good emotion regulation skills will be more able to make sense of their loss, benefit themselves through assimilation of the shattering experience, and identify positive changes in their lives.

The present study explored productive emotional processing that leads to change and unproductive emotional processing that results in continuing distress and unresolved feelings. It explored whether the productive and unproductive subscales of the PUG add to the prediction of sense making, self benefits and positive change. It was expected that the productive and unproductive scores at Time 1 would predict sense making, self benefits and positive change at Time 2, and would also play the role of a moderator in the relationship between emotional awareness/expression/regulation and the above mentioned variables. Particularly, it was expected that people who reported a productive emotional state at Time 1 and who had good emotional awareness/expression/regulation would report more meaning, self benefit, and positive change at Time 2. This prediction would be different for people who report unproductive symptoms at Time 1 and poor emotional awareness/expression regulation. Such people were expected to report less meaning, self benefit, and positive change.

Measures

A subsample of 102 participants completed measures of grief, emotional functioning and meaning making twice within a six-month interval. Similar to Study 2, the participants completed demographic questions, the PUG, CBI, TSI, DERS, and the EACS (see Study 2 for reliability and validity of these measures). In addition, the participants completed three measures of meaning making: sense making, benefits finding and positive change. The conceptual validity of the sense making, benefits finding and positive change questions were

confirmed empirically in a number of previous studies (Davis et al., 2000; Frantz et al., 1998; Keesee et al., 2008; Tolstikova et al., 2005).

Sense making. To assess sense making in grief, two questions were taken from the research by Davis et al. (2000): (1) Some people have said that they find themselves searching to make some sense or find some meaning in their close person's death. Have you ever done this since your loved one's death? (2) Have you made any sense or found any meaning in your loved one's death? The response options are rated on 5-point Likert scale, ranging from "no, never" to "yes, all the time" for the first question, and from "no, not at all" to "yes, a great deal" for the second question. Previously, the convergent and face validity of the construct was shown in the studies by Tolstikova et al. (2005) and Keesee et al. (2008). Tolstikova and colleagues demonstrated that the majority of the participants reportedly searched for meaning (89%), and half of them failed to find a meaning in the loss experience. Participants who searched for meaning and did not find it demonstrated a significantly greater intensity of grief feelings, as well as more symptoms of trauma and complicated grief following the loss. Similar results were reported by Keesee et al. (2008).

Self benefits. Two additional questions regarding the benefits derived from the grief experience were based on the Frantz et al. (1998) study: (1) Despite the tragedy of the death, is there anything positive or good that has come about because of the death? (2) Are there any ways in which you are now a different person than you were before the death? The response options for the self benefits questions were rated on 5-point Likert scale, ranging from "no, not at all" to "yes, a great deal." These ratings are similar to the method which other researchers used for measuring benefits finding in previous studies (e.g., Davis et al., 1998; Keesee et al., 2008).

Positive change. Positive change was measured through categories derived from the qualitative analyses in the Frantz et al. (1998) study. This study established face validity of the construct. In the study, 312 bereaved adults were asked what good came out of the loss experience, what they have learned, and how they were different now. The participants' answers were further analyzed, summarized, and classified into categories. It was found that 33% of participants were "more mature," 20% - "live in present," 14% - "more compassionate," 13% - "lonelier, sadder," 11% - "closer to friends and family," 5% - "more afraid of death," 5% - "bitter, harder," and 4% - "can't leave home." In the present study, participants were asked the following question:

As a result of the death have you felt any of the following?

1. I am more mature, confident, independent, stronger
2. I can't leave home, can't make decisions, became more cautious
3. I am more compassionate and understanding, tell people I love them
4. I am lonelier, sadder, part of me died
5. I am closer to friends and family, have new role in family
6. I am more afraid of death, cancer, more fragile
7. I am bitter, hardened, nastier, tougher
8. I live in the present, appreciate life

The category "I am no different" that summarized responses of 13% of participants in the study by Frantz et al. was not included in our study. The response options for the positive change questions were rated on 5-point Likert scale, ranging from "no, not at all" to "yes, a great deal."

Results and Discussion

Multiple regression analyses were conducted. The missing values were excluded on an analysis by analysis basis, which is reflected in different degrees of freedom for each analysis. For the purpose of the statistical analyses, sense making was scored as participants' ratings in response to the question "Have you made any sense or found any meaning in your loved one's death?" Benefits finding was scored as participants' ratings in response to the question "Despite the tragedy of the death, is there anything positive or good that has come about because of the death?" Positive change was a mean score of the eight ratings responding to the question "As a result of the death, have you felt any of the following?"

-----Insert Table 8-----

First, it was examined whether emotional awareness/expression/regulation scores (DERS, TAS-20, and EASC scores) at Time 1 explained a significant proportion of variance in sense making, benefits and positive change scores at Time 2 (see Table 8, which summarizes all of the following analyses). Emotional awareness/expression/regulation scores (DERS, TAS-20, and EASC scores) at Time 1 explained a significant proportion of variance in the sense making scores at Time 2 ($R^2 = .56$, $F(3, 74) = 11.11$, $p < .00$). However, only the DERS scores predicted sense making scores at Time 2 ($\beta \text{ DERS} = -.58$, $t(74) = -3.61$, $p = .001$, $\beta \text{ TAS} = .03$, $t(74) = .20$, $p = .85$, $\beta \text{ EACS} = .01$, $t(74) = .09$, $p = .93$). Similarly, emotional awareness/expression/regulation scores (DERS, TAS-20, and EASC scores) at Time 1 explained a significant proportion of variance in positive change scores at Time 2 ($R^2 = .56$, $F(3, 71) = 10.59$, $p = .000$). Only DERS predicted positive change scores at Time 2 ($\beta \text{ DERS} = -.58$, $t(71) = -3.55$, $p = .001$, $\beta \text{ TAS} = .12$, $t(71) = .72$, $p = .47$, $\beta \text{ EACS} = .11$, $p = .40$). Finally, emotional awareness/expression/regulation scores (DERS, TAS-20, and EASC scores) at Time 1 explained

a significant proportion of variance in self benefits scores at Time 2, $R^2 = .35$, $F(3, 74) = 3.5$, $p < .019$. However, none of the scales significantly predicted self benefits scores (β DERS = $-.18$, $t(74) = -1.02$, $p = .31$, β TAS = $-.12$, $t(74) = -.66$, $p = .51$, β EACS = $.09$, $t(74) = .64$, $p = .53$). Thus, the emotional processing scores predict sense making and positive change six months later. This finding supports Greenberg's theory about emotional functioning predicting meaning making (Greenberg, 2004).

Then, it was examined whether the productive and unproductive scores at Time 1 predict sense making scores six months later. A multiple regression analysis demonstrated that the PUG subscales scores at Time 1 explained a significant proportion of variance in the sense making scores at Time 2 ($R^2 = .30$, $F(2, 89) = 19.2$, $p < .000$). The unproductive subscales significantly negatively predicted sense making scores at Time 2 (β unproductive = $-.49$, $t(90) = -5.3$, $p < .000$), whereas the productive subscale significantly positively predicted sense making scores (β productive = $.21$, $t(90) = 2.3$, $p < .02$). Thus, as expected, higher unproductive emotional processing scores predicted lower sense making scores six months later, whereas higher productive scores predicted higher sense making scores six months later. This finding supports Greenberg's assumption that emotional processing predicts meaning making. It also demonstrates a differential effect of productive and unproductive emotional processing on meaning making. Contrary to the studies by Bonanno, et al. (1995) and Parker & McNally (2008), it is not the avoidance and repression of feelings that foster adjustment, but rather the lack of unproductive feelings combined with the experience and expression of the productive feelings. As previously shown by Greenberg and colleagues (2007), unproductive emotional processing leads to poorer outcomes compared to productive emotional processing.

Further, it was examined whether productive and unproductive scores at Time 1 would predict positive change and self benefit scores six months later. The PUG subscales scores at Time 1 explained a significant proportion of variance in positive change and self benefit scores at Time 2 (R^2 positive change = .42, $F(2, 88) = 30.4$, $p < .000$, R^2 self-benefit = .13, $F(2, 89) = 6.6$, $p < .002$). The unproductive scores at Time 1 significantly negatively predicted both positive change and self benefit scores at Time 2 (β positive change = $-.59$, $t(87) = -7.0$, $p < .000$; β self benefit = $-.35$, $t(90) = 3.6$, $p < .001$). The productive scores at Time 1 significantly positively predicted positive change scores at Time 2 ($-\beta$ positive change = $.23$, $t(87) = 2.7$, $p < .00$) but not self benefit (β self benefit = $.04$, $t(90) = .41$, $p = .68$). To summarize, higher unproductive emotional functioning scores predicted lower positive change and self benefit scores six months later. In addition, higher productive functioning scores predicted higher positive change scores six months later and did not have any effect on self benefit scores. The differential pattern of the PUG's association with sense making, benefits finding and positive change supports previous studies (Davis, 2008; Gillies & Neimeyer, 2006) that conceptualized meaning making as a multi-faceted process.

Further, it was examined whether people in a productive emotional state at Time 1 who have good emotional awareness/expression/regulation will achieve more sense, self benefits, and positive change at Time 2. Accordingly, people in an unproductive emotional state at Time 1 who reported poor emotional awareness/expression regulation were expected to achieve less sense, self benefits, and positive change at Time 2. Thus, it was tested whether the productive and unproductive emotional states are moderators of the relation between emotional awareness/expression/regulation and sense making, self benefits, and positive change. Since only emotional regulation scores explained significant change in grief scores, in further regression

analyses, only the emotional regulation (DERS) scores were used. For better interpretability of interactions and to avoid multicollinearity, the predictor variables were centered (Aiken & West, 1991; Judd & McClelland, 1989). A hierarchical multiple regression analysis demonstrated that there was a significant interaction effect for emotional regulation and unproductive scores in predicting sense making (R^2 change = .08, $F(1, 82) = 9.8$, $p < .002$, β DERS = $-.42$, $t(84) = -2.8$, $p < .006$; β unproductive = $-.21$, $t(84) = -1.44$, $p = .15$; β interaction = $.29$, $t(84) = 3.1$, $p < .002$). However, there was no interaction effect between the DERS and productive emotional functioning (R^2 change = .00, $F(1, 84) = .60$, $p = .44$, β DERS = $-.47$, $t(86) = -4.5$, $p < .000$, β productive = $.10$, $t(86) = 1.0$, $p = .32$, β interaction = $-.08$, $t(86) = -.77$, $p = .44$). Thus, only unproductive scores moderated the relation between emotional regulation and sense making.

To explore the direction of the interaction effect and to plot the variables, the DERS scores and unproductive scores were transformed into z scores. The z -scores provide information about the relative position of a score compared to other scores in the distribution (Dorfman & Hersen, 2001). The z -scores greater than one ($z > 1$) and z scores less than one ($z < 1$) were plotted against the meaning scores. As seen on Figure 1, emotional regulation at Time 1 negatively predicted sense making at Time 2 for those participants who reported fewer unproductive feelings at Time 1 ($z < 1$). In contrast, emotional regulation at Time 1 positively predicted sense making at Time 2 for those participants who reported more unproductive feelings at Time 1 ($z > 1$). In other words, people who experienced least unproductive feelings and had good emotional regulation reported making sense of their loss experience. In contrast, the significant increase in the unproductive feelings with poor emotional regulation led to difficulty in making sense of the loss at Time 2. This finding is consistent with Greenberg's prediction that unproductive emotional processing would predict poorer outcome compared to productive emotional

processing (Greenberg et al., 2007). Similar results were described by Michaels & Snyder (2005): they found that sense making was associated with decreased levels of rumination about the death.

-----Insert Figure 1-----

A further hierarchical multiple regression analysis was completed to test a moderating effect of the productive and unproductive scores in the relation between emotional regulation and self benefit. The results demonstrated that there was a significant interaction effect between emotional regulation and unproductive scores in predicting self-benefit scores (R^2 change = .05, $F(1, 82) = 5.1, p < .03, \beta \text{ DERS} = -.09, t(84) = -.47, p = .50; \beta \text{ unproductive} = -.31, t(84) = -1.89, p < .06; \beta \text{ interaction} = .24, t(84) = 2.30, p < .03$). The interaction is plotted on Figure 2. There was no interaction effect between the DERS and productive emotional functioning (R^2 change = .006, $F(1, 84) = .52, p = .47, \beta \text{ DERS} = -.28, t(86) = -2.4, p < .02, \beta \text{ productive} = -.01, t(86) = -.10, p = .92, \beta \text{ interaction} = -.08, t(86) = -.72, p = .47$).

As seen in Figure 2, emotional regulation at Time 1 did not make any difference in self benefit at Time 2 for those participants who reported the least unproductive feelings at Time 1 ($z < 1$). These participants reported most self benefits resulting from their loss experience. In contrast, emotional regulation at Time 1 positively predicted self benefits at Time 2 for those participants who reported increased unproductive feelings at Time 1 ($z > 1$). Thus, contrary to expectations, people with difficulty in emotional regulation reported more self benefits when they experienced more unproductive feelings. Interestingly, this result is consistent with the Michael & Snyder (2005) conclusion that finding benefits was positively related to ruminating about the loss and depressive symptoms.

----- Insert Figure 2 -----

Finally, a hierarchical multiple regression analysis demonstrated no interaction effect between the DERS and productive emotional functioning in predicting positive change (R^2 change = .000, $F(1, 80) = .005$, $p = .94$, β DERS = $-.49$, $t(82) = -4.6$, $p < .000$, β productive = $-.12$, $t(82) = 1.2$, $p = .24$, β interaction = $-.007$, $t(82) = -.07$, $p = .94$). As well, there was no interaction between emotional regulation and unproductive scores in predicting positive change scores (R^2 change = .009, $F(1, 79) = 1.2$, $p = .29$, β DERS = $-.14$, $t(81) = -.93$, $p = .35$; β unproductive = $-.50$, $t(81) = -3.4$, $p = .001$, β interaction = $.10$, $t(81) = 1.2$, $p = .29$). Thus, neither the productive nor unproductive emotional state is a moderator of the relation between emotional regulation and positive change scores. This result, although contrary to the study expectations, highlighted the difference between the three dimensions of search for meaning in grief (e.g., Davis, et al., 1998; Holland, Currier, & Neimeyer, 2006; Keesee, et al., 2008)

General Discussion

The present study provided preliminary support for the PUG as a measure of productive and unproductive emotional processing in grief. The PUG was further used to establish the relationship between emotional functioning and meaning making in grief.

The findings demonstrate that the PUG has high internal consistency, good test-retest reliability, and adequate construct and predictive validity. The study provided support for the importance of differentiating between productive and unproductive grief functioning. Most of the existing grief questionnaires are focused on the painful emotions and cognitions that reflect separation and distress (Burnett et al., 1997; Faschingbauer, Zisook, & DeVaul, 1987; Sanders, Mauger, & Strong, 1985; Hogan, Greenfield, & Schmidt, 2001). The productive and positive aspects of grieving have been discussed previously (Calhoun & Tedeschi, 2001; Davis, 2008; Frantz et al., 1998), but were never formally represented in a grief measure. Previous research

suggested the distinction between “productive” and “non-productive” grief coping (p. 451, Michael & Snyder, 2005). For example, productive grief functioning was seen as the result of a successful search for meaning that allowed one to become “unstuck” from the grieving process and move on. In contrast, non-productive or ruminative coping was conceptualized as a result of persistent inability to find meaning in the loss. Opposite to the view that the productivity in grief functioning was the result of meaning making, the present study examined whether it is the emotional processing of grief that can be productive and lead to successful meaning making, or unproductive and lead to failure in meaning making. Thus, the identification of productive and unproductive emotional functioning may assist in the assessment of grief in clinical settings.

The results of this study supported the growing body of research emphasizing the important role of emotional processing in coping with shattering life events (Greenberg et al., 2007; Greenberg, 2004, Pennebaker, 1990) and further examined the relation between emotional grief functioning and meaning making (Keesee et al, 2008; Davis et al., 1998). Previous studies examined the benefits of avoidance and repressive grief coping compared to emotional coping (Bonnano et al., 1995; Parker & McNally, 2008). For example, Parker & McNally (2008) argued that repressive coping may protect individuals from adverse emotional consequences in the wake of extremely stressful events. Their results suggested that “repressors” were coping more effectively with the loss of their loved one’s suicide than were non-repressors. In contrast, rumination, as a process of focusing on negative emotions at one-month post loss, significantly predicted depressive symptoms at all post-loss assessments over 18 months (Nolen-Hoeksema, Parker, & Larson, 1994; Nolen-Hoeksema, McBride, & Larson, 1997). In addition, ruminative coping predicted an inability to make sense of the loss at the follow-up assessments (Nolen-

Hoeksema & Davis, 1999), whereas decreased levels of rumination about the death were associated with meaning making (Michael and Snyder, 2005).

The results of the current study demonstrated that only unproductive (ruminative) emotional functioning is negatively related to meaning making, whereas productive emotional functioning is positively related to sense making and positive change. Similar to Michael and Snyder's finding, individuals in an unproductive emotional state were likely to find less meaning six months later. Thus, the avoidance and repression of feelings might be effective for people in unproductive emotional state, whereas the experiencing of productive feelings proved to be important for meaning making in loss.

The present results supported the dual process model developed by Stroebe and Schut (1999) which suggested that avoiding grief may be both helpful and detrimental, depending on the circumstances. The dual process model recognizes that both expressing and controlling feelings are important. Grief is viewed as a dynamic process in which there is an alternation between focusing on the loss of the person who has died ("loss orientation" or grief work) and avoiding that focus ("restoration orientation" or meaning making). The present study supported that both grief work and meaning making are necessary for grief assimilation. The results of the present study advanced the dual process model by differentiating between productive emotions that lead toward restoration and unproductive emotions that are part of the necessary grief work.

Further, the unproductive PUG subscale scores were shown to be a significant moderator of the relation between emotional regulation and meaning making and self benefits scores. More specifically, emotional regulation at Time 1 negatively predicted meaning making at Time 2 for those participants who reported less unproductive feelings at Time 1. In contrast, emotional regulation at Time 1 positively predicted meaning making at Time 2 for those participants who

reported greater unproductive feelings at Time 1. That is, as expected, bereaved individuals who are less engaged in unproductive emotional functioning and who have good emotion regulation abilities were able to make sense of their loss through assimilation of the shattering experience, whereas people who were more engaged in unproductive emotional processing and who had poor emotion regulation abilities tended to find less meaning.

In addition, emotional regulation at Time 1 predicted even higher self-benefit scores at Time 2 for those participants who reported less unproductive feelings at Time 1. In contrast, emotional regulation at Time 1 positively predicted self-benefits at Time 2 for those participants who reported more unproductive feelings at Time 1. Thus, contrary to expectations, people with difficulty in emotional regulation were more likely to report self benefits if they experienced more unproductive feelings. However, people who reported less unproductive feelings were likely to find more self benefits, independent of their emotional regulation abilities. Although surprising, these results replicated Michael & Snyder's (2005) conclusion that finding benefits positively correlated with rumination about the loss and depressive symptoms. For those who experienced the death over a year ago, finding benefits was positively associated with ruminating about the loss and depressive symptoms. This relationship should be examined further in future studies. In Greenberg's model awareness, expression and regulation of unproductive feelings in therapy is a necessary step toward healing (Greenberg & Paivio, 1997; Greenberg et al., 2007). It is also possible that expression of unregulated painful feelings leads to cathartic effect and brings about a sense of purification and enhancement. Alternatively, as Davis (2008) and Gillies & Neimeyer (2006) pointed out, finding benefits might be a "defensive illusion" that protects individuals' self-esteem. Wortman (2004) argued that reports of growth might to some extent reflect defensiveness and attempts on the part of the bereaved to convey an impression of good

coping. Reports of personal growth may represent cognitive defenses or illusions that serve to maintain a sense of mastery over the event, by selectively focusing on aspects that make one appear advantaged. These defensive reactions may be protective to the threats to self-esteem embedded within the loss experience. Another possible explanation to the reverse relationship between productivity and self benefits is that people in a state of emotional turmoil feel that they are stronger because they find themselves capable to survive in the face of the unthinkable loss.

The present study also supported the differentiation of cognitive sense making offered by Davis (2008), Keesee, et al., (2008) and Gillies & Neimeyer (2006). Meaning making was previously defined through three major aspects: sense making, benefit finding and posttraumatic growth. Several studies examined the relation of sense making, benefit finding, and positive change with other variables (e.g., Davis, et al., 1998; Holland, et al., 2006; Keesee, et al., 2008). In the present study, productive and unproductive grief functioning predicted different outcomes for sense making, self benefit and positive change. In particular, the unproductive emotional functioning scores negatively predicted sense making, positive change and self benefit scores six months later. The productive functioning scores positively predicted sense making and positive change scores six months later and did not have any effect on self benefits. The differential pattern of the relation between sense making, benefits finding and grief adaptation was found in previous studies as well. For example, Gillies & Neimeyer (2006) stated that event characteristics predict meaning making, while personality factors such as degree of optimism or pessimism, predict benefit finding. Posttraumatic growth and positive change has been predicted by personality factors of optimism, extraversion, and openness to internal experience (Tedeschi & Calhoun, 1996) and environmental factors of social, family, and community support and a stress-free posttrauma environment (Schaefer & Moos, 1998).

Neimeyer & Anderson (2002) described the importance of the narrative process of finding meaning. That is, the process of how one tells the story of the loss or an individual's attempt to describe and explain what happened and to organize experience in a coherent framework. Narrative is also seen as a fusion of emotion and meaning (Greenberg & Angus, 2004). In psychotherapy, narrative has an integrative function of framing emotional processes into meanings and, thus, promoting personal change experience (Greenberg & Angus, 2004). From the narrative perspective an expression (or a story) of emotional pain of the loss and attempts to explain the feelings and events related to the loss is a construction of a self-narrative that organizes the experiences, provides a sense of self-coherence (meaning for the self), and establishes self-identity (meaning for others). Thus, narrative should be seen as an integration of cognition and emotion (Greenberg & Angus, 2004). Michael and Snyder (2005) hypothesized that ruminative (unproductive) grief process leads to narrative disorganization, or inability to integrate new information into a story. Based on the results of this study, it could be added that productive emotional grief processing results in successful integration of the loss experience in a meaningful story.

Given the preliminary nature of this study, replication of the results with different samples (e.g., males, or people who experienced a loss of a pet), under different circumstances (e.g., different assessment method and procedure) is necessary to ensure robustness and generalizability of the findings (Haynes, Richard, & Kubany, 1995). Examination of the psychometric properties and factor structure of the PUG among diverse groups of bereaved people is also necessary. Future research on the validity of the PUG should examine its relation with a broader range of self-report measures of emotional responding, as well as health

measures. Further research should also examine the discriminant validity of the PUG, especially with respect to other measures of grief, anxiety, and depression.

Further research is needed on the predictive validity of the PUG as well. The cognitive outcomes of meaning making, self benefits, and positive change were chosen to provide preliminary data in this area, in part, because of the theoretical interest in building a connection between emotional processing and meaning making. Future research should examine other clinically relevant behaviours and constructs that also may be associated with productive and unproductive emotional processing, including complicated grief, health concerns, depression and subjective well-being. Research further exploring the differential role of the PUG subscales in predicting grief outcomes will be especially important, as productive and unproductive scores may suggest specific targets for intervention.

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Table 1. Demographic Characteristics of the Samples.

	Validity sample	Reliability sample
	N=315	N=102
Age Mean (SD)	41.6 (12.4)	44.7 (11.3)
Gender Female (%) Male (%)	287 (91.4) 27 (8.6)	95 (93.1) 7 (6.9)
Marital status Single (%) Married/common law/partner (%) Divorced/separated (%) Widow/widower (%)	67 (21.3) 148 (47.0) 32 (10.2) 68 (21.6)	12 (11.8) 55 (53.9) 6 (5.9) 29 (28.4)
Relationship to deceased Parent (%) Adult child (%) Spouse (%) Sibling (%) Grandparent (%) Friend, fiancé (%) Other relative (%)	89 (28.3) 78 (24.8) 69 (21.9) 28 (8.9) 22 (7.0) 22 (7.0) 7 (2.2)	33 (32.4) 17 (16.7) 28 (27.5) 13 (12.7) 5 (4.9) 4 (3.9) 2 (2.0)
Time since loss ≤1 year (%) >1 ≤ 2 years (%) > 2 ≤ 3 years (%) > 3 ≤ 30 years (%)	181 (59.0) 36 (11.4) 21 (6.6) 68 (21.8)	66 (64.7) 12 (11.8) 9 (8.9) 15 (14.9)
Cause of death Illness (%) Accident (%) Sudden heart attack (%) Murder/suicide (%) Age (%) Miscarriage/stillbirth (%) Unknown (%)	151 (47.9) 79 (25.1) 30 (9.5) 19 (6.0) 15 (4.8) 8 (2.5) 13 (4.1)	51 (50.0) 24 (23.5) 11 (10.8) 9 (8.8) 3 (2.9) 3 (2.9) 1 (1.0)

Table 2. Factor Structure and Factor Loadings of the PUG

	Factor	
	1	2
33. I feel hopeless.	.88	-.08
16. I feel overwhelmed with grief.	.88	.08
19. I feel stuck in my pain.	.87	-.02
13. I feel that I cannot cope with my emotions since his/her death.	.86	-.03
11. I am afraid that I will not be able to cope.	.85	-.01
3. I feel helpless.	.83	-.02
14. I feel that I have lost my sense of emotional control since his/her death.	.83	-.09
20. I feel that my life is useless without him/her.	.81	.02
41. I cannot accept his/her death.	.78	-.03
25. An unusual numbness comes over me when I think of him/her.	.76	.01
27. I have a feeling that I do not have control over what happens to me.	.75	-.05
26. I feel like things are not real.	.75	.04
29. I feel numb when I try to express my grief.	.74	-.11
38. I resent that this should have happened.	.74	.02
4. I feel lonely.	.73	.06
36. I feel bitter over his/her death.	.73	-.14
37. I keep asking myself: Why it happened to me?	.73	.01
39. I feel his/her death is unfair.	.71	.10
23. I feel sad when I think of what I have lost.	.71	.33
10. I feel that I have lost my sense of security or safety since his/her death.	.70	.11
7. It is painful for me to think about him/her.	.70	-.05
30. I cannot help myself feeling angry about his/her death.	.70	-.07

1. I feel sad and am longing for him/her.	.69	.36
40. I feel guilty when I think of him/her.	.62	-.19
32. There are things to do with his/her death that make me feel guilty.	.60	-.08
42. I blame myself for his/her death.	.58	-.17
34. I feel that I cannot speak about my grief.	.56	-.25
28. Memories of him/her create a warm feeling.	.03	.81
15. When I think of him/her I feel warm and tender.	-.04	.79
9. I feel good about our time together with him/her.	.12	.77
5. I feel warm and loving when thinking about him/her.	-.01	.76
17. I feel joy when I think about something we had done together with him/her.	.10	.76
22. I feel tender and loving around places and things associated with him/her.	-.02	.75
35. I feel that I have taken in the good parts of what we had.	.00	.70
6. I remember the good parts as well as the difficult parts of our time together.	.14	.66
12. I feel that I can express my grief to others.	-.09	.62
18. When I express my grief to some people I feel understood.	-.20	.62
2. I feel that I can share my grief with other people.	-.06	.59
24. I feel that I can give voice to my grief.	-.13	.55
31. My dreams of him/her make me feel soft and tender.	.04	.55
8. I feel that my grief is heard by others.	.04	.52
21. I feel that I can put my grief into words.	-.13	.44

Extraction Method: Principal Axis Factoring

Rotation Method: Varimax with Kaiser Normalization

Table 3. Eigenvalues and Percentage of Variance Accounted for by the Two Factors in the Final

Factor Analysis (N = 315)

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	15.7	37.4	37.4	15.3	36.5	36.5	15.3	36.5	36.5
2	7.7	18.3	55.7	7.2	17.1	53.6	7.2	17.1	53.5

Table 4. Internal consistency values for PUG factors

Factor	Subscale Name	#	$\hat{\alpha}$	Range of item-total correlations	M	SD
1	Productive	15	.92	.47 - .76	3.27	0.82
2	Unproductive	25	.97	.56 - .87	2.83	1.03

Table 5. Descriptive statistics for PUG productive, unproductive, and social factors (N=315)

	Productive	Unproductive
Gender: <i>M (SD)</i>		
Male	45.5 (13.2)	69.7 (32.4)
Female	49.5 (12.1)	71.0 (25.3)
Time since loss: (<i>r</i>)	-0.02	-0.32**
Age: (<i>r</i>)	0.27**	-0.13*
Marital status: <i>M (SD)</i>		
Single	44.5 (11.6)*	74.0 (24.6)
Married/common law	49.2 (12.0)*	70.8 (25.9)
Divorced/separated	50.2 (12.6)	64.5 (23.4)
Widow/widower	53.5 (11.8)*	71.0 (28.3)
Relationship to deceased: <i>M (SD)</i>		
Child	49.0 (11.0)	78.2 (26.9)*
Spouse	53.2 (11.8)*	70.3 (28.2)
Parent	49.0 (11.7)	67.8 (22.3)
Sibling	45.2 (11.8)	72.9 (21.1)
Grandparent/grandchild	44.1 (15.0)*	58.5 (22.7)*
Other relative	40.6 (12.7)	53.2 (21.3)
Friend	50.4 (14.1)	69.9 (29.3)
Cause of death: <i>M (SD)</i>		
Accident	49.5 (12.3)	76.7 (25.9)*
Illness	49.0 (11.4)	69.5 (24.3)
Age	42.8 (15.4)	51.5 (25.7)*
Miscarriage/stillbirth	43.0 (13.3)	81.0 (29.0)
Heart attack	53.0 (10.8)	68.1 (27.6)
Unknown	54.0 (14.9)	75.6 (29.5)
Murder/suicide	47.1 (13.7)	71.9 (25.9)

** significant at the 0.01 level

* significant at the 0.05 level

Table 6. Correlations Between the PUG Scales, and Measures of Grief and Emotional Processing
(N = 315)

	Grief (CBI)	Emotional expression (TAS-20)	Emotional regulation (DERS)	Emotional awareness (EACS)
Productive	.19**	-.34**	-.36**	.46**
Unproductive	.74**	.62**	.77**	-.38**

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 7. Correlations Between the PUG Scales, and the COPE Scales (N=315)

COPE scales	Unproductive	Productive
Positive Reinterpretation and Growth	-.52**	.26**
Mental Disengagement	.25**	-.10
Focus on and Venting of Emotions	.16**	.36**
Use of Instrumental Social Support	-.26**	.35**
Active Coping	-.38**	.25**
Denial	.55**	-.10
Religious coping	-.11	.24**
Humor	-.32**	-.04
Behavioral Disengagement	.51**	-.16**
Restraint	-.08	.09
Use of Emotional Social Support	-.33**	.48**
Substance Use	.24**	-.19**
Acceptance	-.57**	.10
Suppression of Competing Activities	.04	.28**
Planning	-.38**	.28**

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 8. Statistical Analyses

Time 1	Time 2	Statistics
Emotional awareness/expression/regulation DERS TAS-20 EASC	Sense Making	$R^2 = .56, F(3, 74) = 11.11, p < .00$ β DERS = $-.58, t(74) = -3.61, p = .001$ β TAS = $.03, t(74) = .20, p = .85$ β EACS = $.01, t(74) = .09, p = .93$
PUG Productive Unproductive		$R^2 = .30, F(2, 89) = 19.2, p < .000$ β productive = $.21, t(90) = 2.3, p < .02$ β unproductive = $-.49, t(90) = -5.3, p < .000$
Interaction DERS by Unproductive		R^2 change = $.08, F(1, 82) = 9.8, p < .002$ β DERS = $-.42, t(84) = -2.8, p < .006$ β unproductive = $-.21, t(84) = -1.44, p = .15$ β interaction = $.29, t(84) = 3.1, p < .002$
Emotional awareness/expression/regulation DERS TAS-20 EASC	Positive Change	$R^2 = .56, F(3, 71) = 10.59, p = .000$ β DERS = $-.58, t(71) = -3.55, p = .001$ β TAS = $.12, t(71) = .72, p = .47$ β EACS = $.11, t(71) = .56, p = .40$
PUG Productive Unproductive		$R^2 = .42, F(2, 88) = 30.4$ β productive = $.23, t(87) = 2.7, p < .00$ β unproductive = $-.59, t(87) = -7.0, p < .000$
Interaction DERS by Unproductive		R^2 change = $.006, F(1, 84) = .52, p = .47$ β DERS = $-.28, t(86) = -2.4, p < .02$ β productive = $-.01, t(86) = -.10, p = .92$ β interaction = $-.08, t(86) = -.72, p = .47$
Emotional awareness/expression/regulation DERS TAS-20 EASC	Self Benefits	$R^2 = .35, F(3, 74) = 3.5, p < .019$ β DERS = $-.18, t(74) = -1.02, p = .31$ β TAS = $-.12, t(74) = -.66, p = .51$ β EACS = $.09, t(74) = .64, p = .53$
PUG Productive Unproductive		$R^2 = .13, F(2, 89) = 6.6, p < .002$ β productive = $.04, t(90) = .41, p = .68$ β unproductive = $-.35, t(90) = 3.6, p < .001$
Interaction DERS by Unproductive		R^2 change = $.05, F(1, 82) = 5.1, p < .03$ β DERS = $-.09, t(84) = -.47, p = .50$ β unproductive = $-.31, t(84) = -1.89, p < .06$ β interaction = $.24, t(84) = 2.30, p < .03$

Figure 1. Interaction Effect: Slopes of Emotional Regulation (DERS) Predicting Sense Making at Different Levels of Unproductive Scores

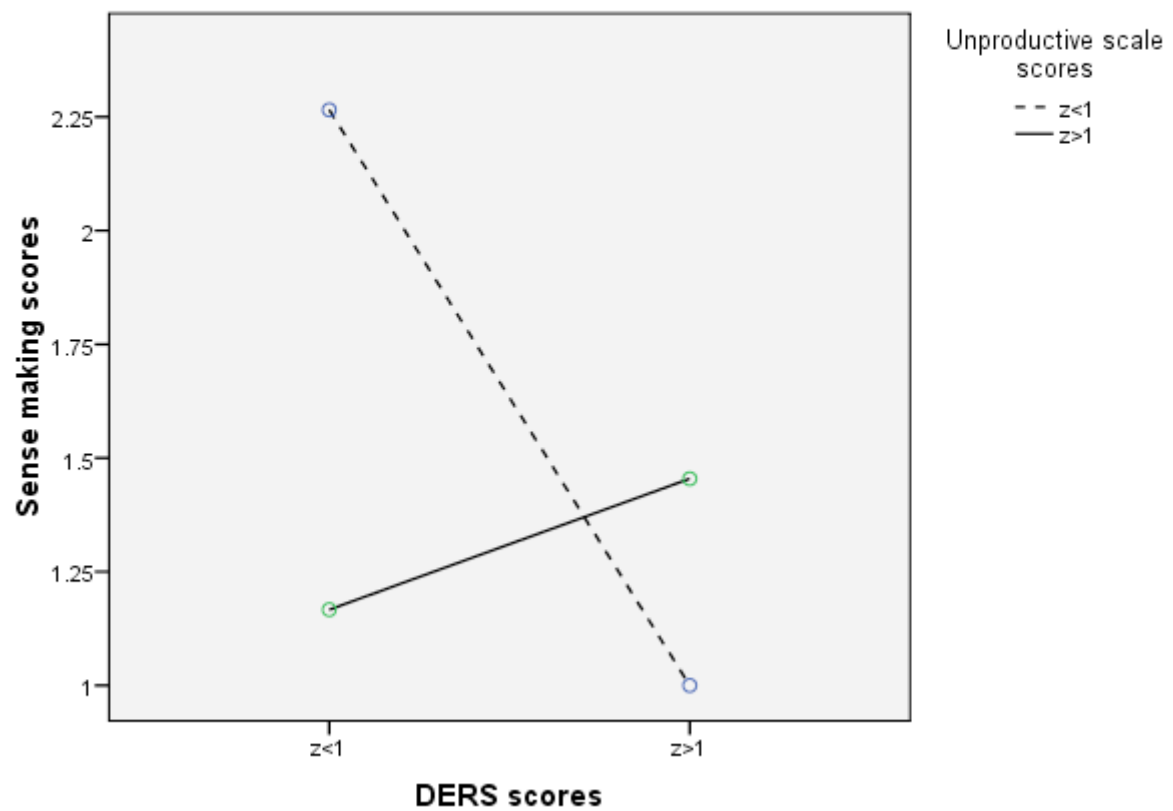
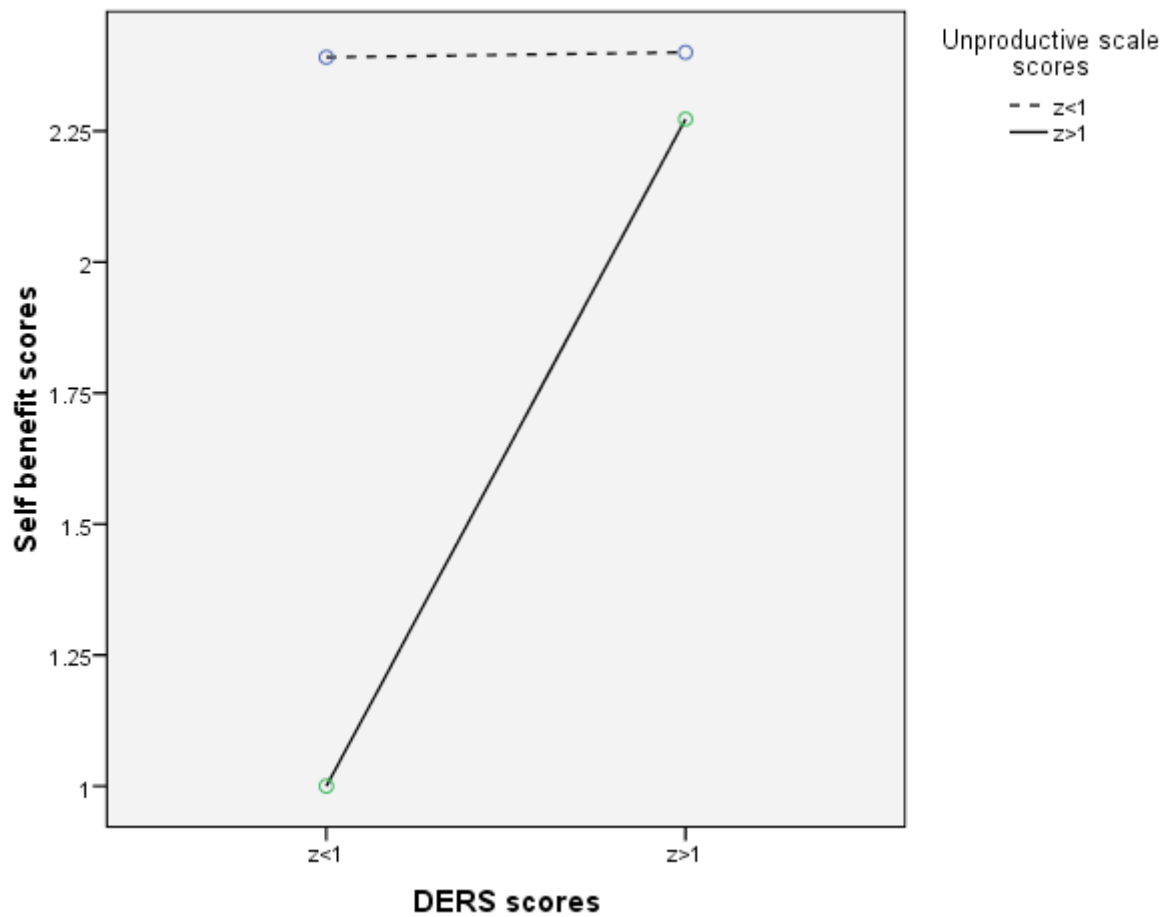


Figure 2. Interaction Effect: Slopes of Emotional Regulation (DERS) Predicting Self Benefit at Different Levels of Unproductive Scores



SECTION C: Internet Method in Bereavement Research:

Comparison of Online and Offline Methods (Study 4)

(Manuscript published in *Omega: Journal of Death and Dying*, 60, 327-349)

Abstract

This study examines the reliability and validity of internet research in bereavement. Recent literature demonstrates an increased interest in utilizing a more convenient, inexpensive, and rapid internet method to collect data and recruit bereaved participants. For researchers, the Internet offers the possibility to learn more about grief from the growing online community of bereaved people. To explore the possible use of internet tools in bereavement research, this study compares online survey method with traditional paper-and-pencil method in grief assessment. One group of bereaved adults ($N = 84$) was recruited and completed the survey by mail and another group of bereaved adults ($N = 262$) was recruited and completed the same set of questions via internet. The collected data were analyzed to identify both similarities and differences between the two samples' responses and the psychometric characteristics of the Core Bereavement Items inventory (CBI, Burnett, Middleton, Raphael, & Martinek, 1997). Significant differences were found between the two samples in relation to time since loss, cause of death, and relationship to deceased, demonstrating a greater variability in the internet sample. Other demographic characteristics, as well as the grief and meaning making scores, did not differ significantly. In addition, no relevant differences were found in the psychometric properties of the CBI. These findings suggest that the internet-based methods can be a suitable and valid alternative to more traditional paper-and-pencil methods.

Introduction

Methodological issues in bereavement research were raised in a number of publications (e.g., Neimeyer & Hogan, 2001; Stroebe, Stroebe, & Schut, 2003; Stroebe, van der Houwen & Schut, 2008). These included overviews of methods, procedures and techniques that were used for collecting and analyzing information. With the increased popularity of the internet-survey method, the validity and reliability of the internet use in grief studies must be assessed. In several recent publications, the empirical research was completed with the help of the internet. For example, quantitative and qualitative analyses of on-line memorials were done by Nager & de Vries (2004); bereavement listservs were monitored and analyzed by Capitulo (2004) and Hollander (2001); and participants were recruited and interviewed via the internet by Hollander (2001) and Nager & de Vries (2004). In addition, an internet-based treatment approach for bereaved individuals was presented by Wagner, Knaevelsrud, & Maercker (2006). Unfortunately, none of these studies explored if and how the use of internet method affected their findings. Stroebe et al. (2008) pointed out that there is a strong need in scientific investigations with an appropriate method to assess benefits of the internet in grief and bereavement research. The purpose of the present paper is to review the use of the internet in bereavement research and to examine the reliability and validity of online data collection. This paper will also consider whether grief surveys administered via the internet yield results comparable to the traditional paper-and-pencil survey method.

Grief Online

Virtual space has quickly become a place to share the loss experience (Jones, 2004; Nager & de Vries, 2004). An increasing number of web-memorials, discussion groups and informational websites for bereaved have been created. Nager and deVries (2004) pointed out

that for researchers the internet “offers a window onto the grief and the nature of the ties between the bereaved and the deceased” (p. 52). Why do bereaved people look into virtual space? It has been argued that the web can play a very important role in providing for the various needs of the bereaved, such as information about grief and coping, access to an understanding community, and honouring the deceased loved ones (Clark, Burgess, Laven, Bull, Marker & Browne, 2004; Stroebe et al., 2008).

The opportunity to share the feelings and experiences with people going through similar turmoil is one of the foremost values for the participants of bereavement communities (Moss, 2004). Hollander (2001) believes that the internet connects grieving people who otherwise would likely not have met. As one bereavement study participant confessed, “The grief sites on the internet...are open 24/7 so you can dump what you need to dump when you need to dump it...Everybody who comes to these sites has been through it, and has some idea how bad we feel...It certainly helps us feel less freakish, and that reduces the stigma” (Hollander, 2001, p.140). Social, emotional and physical isolation is one of the common experiences in grief (Wagner et al., 2005). Bereaved people might experience greater isolation for several reasons. People might feel excluded both because of grief that is out of social bounds (e.g., disenfranchised grief; Doka, 1989) or because of the rigid view of what is a normal time/intensity of grieving (Hollander, 2001). If the loss is stigmatizing (e.g., suicide, child loss, murder), many bereaved people develop strong feelings of guilt and shame (Wagner et al., 2005). For some individuals, e.g., males and certain cultural groups, asking for personal help might be difficult or inappropriate (Clark et al., 2004). As a result, people might withdraw from social interactions, and contact with them from others might be avoided, leading to further isolation and loneliness. For such people, web media may be the only source of help. The online bereavement community may provide a

link to people who have had similar experience or can tolerate talking about grief and loss so that the grief can be expressed and sense can be made out of the experience.

Among the important advantages of the internet bereavement community are anonymity, privacy, non-confrontational nature, and 24-hour availability (Clark et al., 2004). The internet provides a virtual place where people meet, create, and share their virtual identities. As Capitulo (2004) pointed out, grieving participants establish a community with a specific “culture” (p. 305) that is characterized by common attitudes and beliefs, predominant themes, interaction styles, and symbols representing the key values. For example, participants use symbols to represent the deceased; their nicknames and e-mail addresses may reflect the lost loved one (e.g. “robinsmom” for Robin’s mom), thus providing an instant message to other members (Capitulo, 2004; Hollander, 2001). However, the real identity of the participants’ remains concealed in the absence of objective, physical cues about their personality, social status, and demographics are absent. Several attempts to describe the identity and psychological characteristics of the participants of online bereavement communities have been made. For example, Nager and deVries (2004) explored the attachment style of the web-memorial authors and found that preoccupied attachment style among adult bereaved daughters was highly represented. In addition, obtained in the internet survey, grief scores were somewhat higher than reported in the literature. The authors suggested that these daughters are experiencing significant anxiety and grief, and its intensity may be associated with their efforts to memorialize their deceased mothers online (Nager and deVries, 2004). Capitulo (2004) explored the main themes of the online perinatal loss group, emphasizing that participants experience “shared metamorphosis” (p.310) through sharing common memories and developing group values and symbols. Hollander (2001) drew attention to the social isolation and stigmatization as the main theme of the online suicide

survivors' community. Nevertheless, the internet bereavement culture and its uniqueness have not been well researched yet. Exploring the demographic, social and personality characteristics of its members, as well as clinical characteristics and coping strategies that might increase the chance of participating in the virtual community is of the utmost importance.

Internet as a Research Venue

Gathering data in virtual space has gained increased popularity in the past decade in many areas of psychology. Multiple publications address positive and negative aspects that are important to consider when a researcher chooses the internet as a research tool (Table 1).

----Insert Table 1----

First of all, the internet method attracts researchers' attention due to its global coverage, speed and inexpensiveness; it has a benefit of reaching people from around the world very quickly and without significant operating costs. The positive aspects also include greater anonymity and, therefore, a greater psychological perception of privacy for the participants. Research has demonstrated that people tend to be more open about sensitive issues in virtual space (Wagner, Knaevelsrud, & Maercker, 2006). The internet can help people to get in touch with a vulnerable population that is more socially isolated, and lacking physical or psychological resources to reach out in "real" world. The researcher can be less intrusive when conducting study online; i.e., the participants can access the information at their convenience, and they might feel less situational demand to complete the study that is uncomfortable or unrewarding (Kraut, Olson, Banaji, Bruckman, Cohen, & Couper, 2004; Nosek, Banaji, & Greenwald, 2002). The survey link could be displayed at a thematic website or message board, and prospective participants can decide if they would like to access it and explore the questions and decide if they are interested in participation. The internet study can be dynamic and interactive, allowing

researchers to customize questions and feedback. It allows for as much time as needed to complete the surveys and to change answers or skip backward and forward. In addition, the technology can provide automatic data entry and storage, so that the technical cost and errors related to manual data entry can be avoided (Epstein, Klinkenberg, Wiley & McKinley, 2001; Evans & Mathur, 2005; Kraut et al., 2004).

At the same time, there are some concerns regarding internet method. Participants of the internet study are self-selected and limited to those people with computer and internet access, thereby potentially presenting a population skewed toward younger age and higher socioeconomic and educational status (Pettit, 1999; Stanton, 1998). In addition, participants are unmonitored, and the researcher cannot be sure about the information collected. For example, members of virtual communities often create new identities which might include fictitious personalities with false age and gender (Kraut et al., 2004; Riva, Teruzzi, & Anolli, 2003). These problems raise concerns regarding the generalizability of study results and create the necessity for researchers to determine the comparability of the data obtained through the internet to the data obtained by traditional paper-and-pen research.

The security of internet data transmissions is another worry; in an internet study, there is a real possibility that the data will be received by a third party (Nozek, Banaji, & Greenwald, 2002). For some people, sharing personal information with unknown researcher via the internet might create a sense of vulnerability and insecurity. In addition, when the study appears to be impersonal and the researcher is remote, the survey might be perceived as spam or as not a serious or reputable project when it is compared to a laboratory or mail survey. Therefore, the response rate might be lower and drop outs more frequent (Evans & Mathur, 2005).

Finally, when the internet study is applied to a vulnerable population, such as people who experienced a significant loss or psychological trauma, additional issues arise for the researchers, including professional integrity and ethical responsibility. As noted by Clark et al. (2004) and Wyatt (1997), the websites that provide clinical information have to be carefully evaluated regarding their accountability and potential harm. The impact of the posted information on the vulnerable population must be considered in order to protect them. Because the dissemination of knowledge via the internet is so fast and extensive, researchers must keep a balance between the reliable and practical utility of the information, and the professional responsibility to protect the security of the clinical information and the assessment tools (Ruiz, Drake, Glass, Marcotte, & van Gorp, 2002).

The physical absence of the researcher during the internet study places limits on the use of assessment tools. A psychologist is ethically obligated to maintain test security. As noted by Ruiz et al. (2002), “the validity of many instruments could be seriously threatened when a patient has information that could be used to manipulate his or her performance” (p. 294). Thus, the use of more sensitive diagnostic clinical tests via the internet can be dangerous and ineffective. Additional ethical concerns are raised due to the impersonal quality and the lack of contact with participants which diminishes the psychologist’s ability to detect and intervene in case of the participant’s distress or psychological crisis caused by the study (Keller & Lee, 2003).

Ethical Considerations in Internet Research

Research with a vulnerable population brings additional demands to the internet method. Conducting research online can affect the actions that researcher can take to ensure participants’ welfare; it changes the nature of the risks and the investigator’s ability to assess them (Kraut et al., 2004). The basic ethical principals underlying research involving human subjects include

privacy and confidentiality, free and informed consent, minimal risk for the participants, and the professional integrity of the researcher (Canadian Psychological Association, 2000). Although there are no official guidelines for internet research, several recommendations have been offered regarding web ethics (Keller & Lee, 2003; Kraut et al., 2004; Nosek et al., 2002; Pittenger, 2003).

The privacy and confidentiality of the participants is easier to achieve in internet research due to the lack of physical contact and limited identifiable information. It is generally accepted that open web-based communications, for example, online discussions or memorials, fall in the public domain and do not require consent for use in research (Capitulo, 2004; Keller & Lee, 2003). However, researchers have the responsibility to minimize the chance of an identity breach. Seemingly anonymous conversations can be tracked down to individual internet users, creating an identity breach. Therefore, researchers are advised to remove the reference to the individual's name or pseudonym and direct quotation (Kraut et al., 2004), and seek permission from a community moderator to examine exchanges among the members (Pittenger, 2003). From the authors' experience, the majority of the grief support websites' moderators indicated that since it involves vulnerable individuals they should be contacted in order to get permission to use their members as participants; the information about the study and institution's ethical approval was usually requested before such permission was given.

Private e-mails or direct survey responses are confidential and require consent for use in research (Capitulo, 2004). Informed consent in research generally covers issues of confidentiality, risks, and purposes of the study, making sure that the participants have all the related information before they agree to participate. However, in internet research, the identity of the person giving consent cannot be verified, which can undermine the entire process and create

problems if the respondent is a minor or has limited cognitive capacity (Keller & Lee, 2003). The ability to consent for the study was also previously questioned by bereavement researchers due to the emotional state of recently bereaved or traumatized people whose decision-making and judgment might be affected by emotions. Beck and Konnert (2005) reported that half of the grief survey respondents felt that they were not in a condition to consent in the days and months after the death. However, others point to the positive effect from research participation through sharing their experience and helping others (Cook, 2001).

The ethical responsibility to minimize risks and alleviate possible harmful effects for the research participants creates challenging issues in internet research. Participation in an online survey can bring additional distress to vulnerable people. Because online research participants cannot be seen, the cues of distress would not be received by researchers, making it more difficult to assess reactions to the research experience (Kraut et al., 2004). The ability to intervene is limited in the case of a harmful effect of the study and it might be difficult to manage a psychological crisis online, and to respond to this crisis in a timely way (Wagner, Knaevelsrud, & Maercker, 2005). Therefore, to minimize the possible risks, ethical review boards and peer reviews should be sought to make sure the study does not bring additional distress. The study has to be thoroughly explained to the participants and the possibility to preview the questions and withdraw at any time should be provided (Keller & Lee, 2003; Kraut et al., 2004). To make sure that participants have the contact information for the researchers, Keller & Lee (2003) suggest encouraging participants to print the informed consent page with contact information before continuing with the study.

Debriefing is one of the methods to protect the participants. Without the immediate presence of a professional, proper debriefing of the participants following the completion of the

study is important element to help alleviate the distress. A debriefing form must be accessible not only for those who had completed the survey, but also for those who withdrew from the study (Nosek et al., 2002).

Maintaining the professional integrity of a psychologist is crucial on the web. This includes alleviating the potential for misunderstanding, providing accurate and up-to-date information that is evidence based, and maintaining the confidentiality of professional information (Clark, et al., 2004; Ruiz et al., 2002). To maintain the security and appropriate use of the assessment methods, researchers have to evaluate carefully the material that is posted for wide attention and make sure that the information cannot be used to undermine the validity of the future research, assessment or treatment (Ruiz et al., 2002).

Internet Method Validity Studies

The psychometric validity and reliability of the data obtained through internet research is another concern. Since study participants in internet research are unmonitored and “virtual”, and the researcher has limited control over the information collected, the generalizability of the results are questioned by many researchers (e.g., Meyerson & Tryon, 2003; Riva, Teruzzi & Anolli, 2003; Stanton, 1998). There are two main questions arising when comparing internet and traditional methodologies. First, due to financial, technical and educational limitations of the computer and internet access, the samples obtained by the internet survey and by traditional paper-and-pencil methods may not be similar in their demographic and clinical characteristics, and therefore may not be representative of the general population. Second, since most psychological measures are validated using traditional paper-and pencil methods, questions arise regarding the psychometric equivalency of the measures completed via internet.

There are numerous publications in different areas of psychology that examine the demographic and psychometric equality of paper-and-pencil and internet data. For example, Riva, Teruzzi & Anolli (2003) compared attitudes toward internet in the internet and paper-and-pencil samples; Miller, Neal, Roberts, Baer, et al., (2002) examined the validity and reliability of alcohol measures administered online and offline; Epstein, Klinkenberg, Wiley & McKinley (2001) evaluated attractiveness ratings; Stanton (1998) tested the perception of fairness of supervisors; Meyerson & Tryon (2003) compared sexual boredom reported by online and offline participants; and Schwarzer, Mueller & Greenglass (1999) investigated self-efficacy. The main conclusion of these studies is that the results obtained online are generally equivalent to those collected by traditional methods.

Traditional hypothesis testing. Traditional hypothesis testing methods have been used to evaluate if there are any differences between online and offline test scores or sample demographics (e.g., t-tests, ANOVAs, or chi-square analyses). For example, Miller et al., (2002) used a series of one-way ANOVAs to examine mean differences in alcohol measures by assessment format; Riva et al. (2003) conducted chi-square analyses to determine if there were any significant differences between internet-related behaviour across samples. In traditional hypothesis testing, the researcher seeks to demonstrate that there are no differences between groups. Therefore, the conclusion about the equivalence of the obtained results is based upon a failure to reject the null hypothesis (i.e., show no statistically significant differences). This method has been criticized by other researchers who have argued that proving no difference is *not* the same as establishing equivalence (Epstein, Klinkenberg, Wiley, & McKinley, 2001).

Equivalence testing. Equivalence testing, which is also called the bioequivalence method due to its popularity in drug testing and biostatistics, attempts to demonstrate that two groups

have equivalent mean values (Epstein et al., 2001; Rogers, Howard & Vessey, 1993). In this method a researcher has to make a priori decision about the minimum difference between the groups' means that would be important enough to make the groups non-equivalent (i.e. defining the equivalence). Then, two simultaneous one sided hypothesis tests have to be performed. To establish equivalency the investigator must reject both one-sided null hypotheses. For example, Epstein et al., (2001) hypothesized that ratings of physical and sexual attractiveness of targets collected via internet would be equivalent to ratings collected through traditional paper-and-pencil administration. Authors determined a priori that mean scores on the internet administration have to be within 20% of the mean ratings for the paper-and-pencil version in order to be equivalent (the 20% rule is a standard used in medical research (Rogers et al., 1993)). Next, the equivalence criterion was calculated and two one-tailed hypothesis tests were performed. For each of the two one-tailed tests, the null hypothesis of a difference greater than 20% of the mean for the paper-and-pencil group was rejected, establishing the equivalence of the results.

Taken together, the traditional hypothesis testing and the equivalence testing approaches evaluate the similarity of the subjects' responses or their demographic characteristics, and do not provide information regarding the comparative validity of the tests performed online and offline. Simple comparison of the mean values alone does not demonstrate the psychometric equivalence of the data (Meyerson & Tryon, 2003).

Factor analyses. Exploratory and confirmatory factor analyses involve estimating the measurement equivalence by estimating the psychometric characteristics and construct validity of the internet-based and paper-and-pencil assessments (Buchanan & Smith, 1999; Riva, Teruzzi, & Anolli, 2003; Stanton, 1998). This approach assumes that if the factor-structure of the test

remains stable across the methods of data collection, then the methods are equally valid. For example, Riva et al. (2003) performed exploratory principal components factor analyses with Varimax rotation to assess whether the internet and paper-and-pencil questionnaires shared the same factor structure. Their analysis identified six factors with similar factor loadings in both samples. Similarly, Stanton (1998) conducted a confirmatory factor analysis by assigning three factors to his questionnaire of supervisory fairness, and then testing the model fit. Using structural equation modeling he demonstrated that the item loadings, correlations between factors, and variability of factors were invariant across the two groups.

Reliability analyses. The test reliability approach examines the “repeatability” of the measurement by estimating whether the reliability of the instrument is independent on the mode of administration. The reliability of the instruments in question are often examined for both the internet and paper-and-pencil administrations using measures of internal consistency (Cronbach’s alpha) and test-retest reliability (Miller, et al., (2002); Riva, Teruzzi, & Anolli, 2003). For example, Miller et al., (2002) estimated the test-retest reliability of the alcohol measures administered twice over one-week period via the internet and the traditional paper-and-pencil method. Authors found that test-retest reliabilities of their measures ranged from .59 to .93., and all correlation coefficients were significant at the .01 level (two-tailed), proving the sufficient reliability of the online and offline measurements. In comparison, Riva et al. (2003) compared the internal consistency of their questionnaire using Cronbach alpha and reported satisfactory values for both internet and paper-and-pencil samples, thus concluding the two methods of data collection equally valid.

Although factor analysis and reliability testing proved to be useful methods in investigating equality of different samples, Meyerson & Tryon (2003) assert that they only

“indirectly address psychometric equivalence” of the data (p. 615) and suggest yet another, more direct method.

Multivariate comparisons. Meyerson and Tryon (2003) compared the correlation matrix of the sexual boredom scale with validating variables administered to two samples. A multivariate comparison of two correlation matrixes was based on the idea that “two forms of a test are equivalent if they correlate to the same degree with other variables” (p.615). An 8 x 8 correlation matrix from the internet sample was compared via structural equation modeling with a similar 8 x 8 correlation matrix from a paper-and-pencil study. The results demonstrated “almost perfect” fit of the model proving the psychometric equivalence of the data (p. 618).

Overall, all these methods are complementary to each other and the choice of the method is usually based on the number of factors, including the sample size and the instruments available for comparison.

Present Study

The purpose of the present study is to establish the validity and reliability of internet data collection in bereavement research. In order to achieve this goal, the study compared a web-based survey results with a traditional paper-and-pencil survey results. More specifically, the paper compared the demographic characteristics and response sets of the two samples, and evaluated the psychometric properties of a standard grief scale administered to both samples.

Method

Participants in the Online Study

The participants were 262 bereaved individuals who had suffered the death of a loved one. Data for the present study were collected as part of a research study on emotional functioning and meaning-making in grief (Tolstikova & Chartier, n.d.) Participants were

solicited through notices placed on several grief support websites. The data were collected through the online survey that was posted on the World Wide Web. An introductory e-mail with the study description was sent to the grief support website moderators. The moderators were asked to post the introduction letter and the survey link on their message boards. It was then up to the individual members to determine whether he/she was interested in participating in the study. Interested individuals clicked on the survey link, which allowed them to complete the consent form. The consent form included a brief description of study goals, assurance of confidentiality as well as researchers' contact information. Once participants had consented to participate, the survey appeared on the screen. The survey was composed of research questionnaires and demographic questions. Participants were instructed on how to complete each section of the survey. The data were kept in a virtual file while the participants proceeded to the end of a survey. Upon completion of the survey, participants were presented with a "submit" button. Once all the survey sections were submitted, a "thank you" letter appeared on the screen. Participants were also encouraged to participate in a follow-up survey. By clicking on the "request to follow-up" button and providing their e-mail addresses, the participants were automatically added to the follow-up list. The participants were free to exit the study at any point of time by pressing the "withdraw" button on the screen.

Participants in the Paper-and-Pencil Study

The participants were 84 bereaved adults who suffered the loss of a loved one at different times. Data for this study were collected as part of the research focused on complicated grief (Tolstikova, Fleming, & Chartier, 2005). Participants in this study were recruited through two volunteer mutual-help organizations: Mothers Against Drunk Driving (MADD) and Bereaved Families of Ontario (BFO), Hamilton/Burlington chapter. The majority of the MADD

participants were recruited through a newsletter that included an advertisement for this study and a consent form. Participants were encouraged to sign the consent form and forward it to the MADD office. Upon receiving consent forms, the researcher forwarded the research package to each of the participants. Additional MADD participants were recruited during the International MADD conference, in April 2002, where individuals interested in the study could pick up the research package with the introduction letter and consent form. Individuals interested in participating then sent the signed consent form to the researcher and received the questionnaire packages through the mail.

The BFO members were recruited through an advertisement of the study placed in the newsletter of this organization. Those interested in participation were asked to express their interest by e-mail or by surface mail. The research packages mailed to the BFO members included a letter of introduction and a consent form along with the research questionnaires.

Thus, both MADD and BFO participants were mailed the research packages, which included a detailed explanation of the study with assurance of confidentiality, and instructions regarding the questionnaires' completion, the questionnaires themselves, a short set of demographic questions and an addressed, postage-paid envelope. Participants were asked to return the completed questionnaires within two weeks of receiving the research package.

Measures

Demographics. Questions were developed to assess background characteristics (e.g., age, gender), and characteristics of the loss experience (e.g., mode of death, time of loss).

Core Bereavement Items Inventory (CBI). The CBI (Burnett, Middleton, Raphael, & Martinek, 1997) is an instrument for measuring core bereavement phenomena based on the construct of grief in the way it is generally conceptualized in Western culture. It was developed

using a pool of questions related to the grief phenomenology which were administered prospectively and then filtered to construct a coherent scale of symptomatology most frequently endorsed by bereaved people. The items were grouped into five clusters based on the theoretical grounds (e.g., items related to attachment behaviour, items associated with thoughts and images, etc.). Principal components analysis with varimax rotation was subsequently conducted for each cluster separately in order to reduce the items within each theoretical grouping. Three subscales were retained that satisfied the following criteria: (1) items with high face validity as representing the key bereavement phenomena; (2) items that discriminated significantly between groups of bereaved people (see below) in a way consistent with the literature and clinical evidence; and (3) items that reflected change over time consistent with the literature and clinical evidence. The three subscales of CBI tap frequently experienced bereavement phenomena such as preoccupation with images and thoughts about the deceased, acute separation, and grief feelings. These three subscales comprise 17 items covering the feelings and experiences of bereaved people. Participants respond to each item using a 4-point response scale ranging from “Always” (“Continuously,” “A lot of time”) to “Never.” Reliability of the overall scale was excellent (Cronbach’s alpha equals .91). Furthermore, the CBI discriminated between bereaved parents, bereaved spouses, and bereaved adult children, where bereaved parents had the highest grief scores and bereaved adult children had the lowest. The CBI was named by Neimeyer & Hogan (2001) as a measure best suited to study “normal” grief responses due to its focus on “core,” uncomplicated, bereavement phenomena.

Meaning questions. Two meaning questions were borrowed from the research of Davis et al. (2000) that focused on the meaning-making in grief. They were: (1). Some people have said that they find themselves searching to make some sense or find some meaning in their close

person's death. Have you ever done this since your loved one's death? (2). Have you made any sense or found any meaning in your loved one's death? Participants responded to each item using a 5-point Likert scale, ranging from "no, never" to "yes, all the time" for the first question, and from "no, not at all" to "yes, a great deal" for the second question.

The conceptual validity of the meaning questions was confirmed empirically in a number of previous studies (Davis, Wortman, Lehman & Silver, 2000; Keesee, Currier, & Neimeyer, 2008; Tolstikova, Fleming, & Chartier, 2005).

Statistical Analyses

The two samples were compared based on their demographic characteristics (e.g., age and gender), parameters of the loss (e.g., time elapsed since the death and cause of the death), self-reports of the grief, and meaning making (e.g., CBI and meaning scores). This was done using the traditional hypothesis testing methods described above (i.e., t-test and chi-square analysis). The psychometric characteristics of the common grief assessment tool, the CBI, were compared across the two methods of administration (i.e., internet versus paper-and-pencil) using factor analysis and the analysis of internal consistency of the scale.

Results

Demographic and clinical characteristics of the samples.

Gender. The majority of participants in both studies were females. A chi-square analysis demonstrated no significant difference between the two samples ($X^2(1, 346) = 2.9, p < 0.9$) in terms of gender. In the internet sample divorced/separated participants were combined with the widowed participants to allow the comparison with the paper-and-pencil sample.

-----Insert Table 2-----

Marital status. There was significant difference between the two samples in terms of marital status ($X^2(2, 345) = 8.7, p < 0.1$). The internet sample presented more diversity in marital status. The significant difference between the marital characteristics of the samples reflects the difference in distributions. That is, the Internet sample had almost 20% single people, whereas the paper-and-pencil group only 7%. At the same time, there were fewer married/common law participants in the Internet sample (50 %) compared to the paper-and-pencil sample (64%). The percent of divorced, separated or widowed participants was relatively consistent in both groups (31% in the Internet group and 27% in the paper-and-pencil group).

Age. There was significant difference in the mean age of the internet and paper-and-pencil samples ($t(338) = -4.76, p < .00$). The internet sample was slightly younger ($M = 42.4, SD = 12.1$) with the age ranging from 18 to 75 years old. The paper-and-pencil sample was older ($M = 49.7, SD = 12.3$) with the age ranging from 22 to 82 years old.

Type of loss. There was a significant difference between the samples in terms of the type of loss ($X^2(2, 346) = 50.589, p < .000$). Losses of a parent, sibling, friend or other relative were combined in the internet sample to allow the comparison with the paper-and-pencil group. Overall, the internet provided greater diversity of participants in terms of loss type. In the internet sample, 29% of the respondents lost a child, 26% lost a spouse, 24% lost a parent and 21% lost other relative or a friend. In comparison, in the paper-and-pencil survey, the majority of respondents (73%) lost a child, 10% of respondents lost a spouse and 18% lost a parent, other relative or a friend. These results were to be expected given the difference in recruitment strategies that were used with two samples.

Cause of death. Paper-and-pencil and internet samples also differed in terms of the cause of death. Since recruitment in the paper-and-pencil study was conducted mostly through MADD,

the majority (86%) of mail respondents were bereaved due to a car accident. On the contrary, the internet sample reported that 62% of the deaths happened as a result of a health condition, including terminal illness or sudden heart failure, 26% accidents, 4% suicide, 4% age, 3% miscarriage or stillbirth, and 2% still waiting for the autopsy or conclusion. It was not possible to assess the statistical significance of the difference between the two samples due to the lack of information about the cause of death in the paper-and-pencil study.

Time since death. The paper-and-pencil and internet samples were significantly different in terms of the time elapsed since the death ($t(114.29) = 4.41, p < .000$). Notably, the internet survey made it possible to receive responses from recently bereaved people: 64% of the respondents in the internet survey reported that death had occurred a year or less ago and, in approximately half of these cases, the death was as recent as the past few weeks. In comparison, only 14% of the paper-and-pencil respondents were bereaved a year or less, and no one reported a loss that occurred weeks before their participation in the study.

Grief. To further investigate the similarities and differences between the two samples, the mean scores of the CBI administered to the paper-and-pencil sample and internet sample were compared. The t-test demonstrated no significant difference ($t(326) = 1.56, p < .12$) between the mean score in the internet group ($M = 49.8, SD = 10.9$) and paper-and-pencil group ($M = 47.6, SD = 11.4$).

Meaning making. Two meaning questions were presented to both paper-and-pencil and internet samples. One question was “Did you search for meaning in the death of your loved one?” while another question was “Have you found the meaning?” The majority (90%) of the respondents in both samples reported that they have searched for meaning in the death, but only half of the respondents in each sample indicated that they found at least some meaning in the

death of their loved ones. The independent samples t-test indicated a significant difference between the two samples in response to the question “did you search for meaning” ($t(342) = -2.02, p < .04$). The internet sample reported less attempt to find a meaning when compared to the paper-and-pencil sample. However, there was no significant difference between the two samples in response to the question “have you found the meaning” ($t(342) = 1.19, p < .234$).

Psychometric Properties of the CBI Across the Methods

CBI reliability. The test reliability approach examines the “repeatability” of the measurement by estimating whether the reliability of the instrument is independent of the mode of administration. The reliability of the CBI was assessed for both the internet and paper-and-pencil administrations using a measure of internal consistency (Cronbach’s alpha). The reliability of the CBI was high for both groups, for the internet sample $\alpha = .92$ and for the paper-and-pencil sample $\alpha = .95$. This finding supports the hypothesis that the two methods of data collection appear to be equally reliable.

CBI factor structure. Factor analyses were conducted to compare the factor-structure of the CBI across the two methods of data collection. If the factor structure was stable (i.e., pattern was the same), then the methods are assumed to be equally valid. Since the initial structural validation of the CBI was achieved on theoretical/empirical grounds rather than through a formal factor analysis (Burnett et al., 1997), the exploratory factor analysis was chosen over the confirmatory factor analysis (Hellsten & Tolstikova, 2009).

First, the exploratory factor analysis was completed with the internet data. The factor extraction using the Kaiser-Guttman rule resulted in the identification of 3 factors while Cattell’s (1966) Scree plot criteria identified 1 factor. Image extraction followed by varimax rotation of all the image components (Kaiser, 1962) also resulted in the identification of 3 factors. Thus,

orthogonal and oblique solutions were examined for 3 factors. Results showed that the solution that best fit the criteria of simple structure (Thurstone, 1947) was the principal axis extraction with direct oblimin rotation for 3 factors (see Table 2). This solution accounted for 64.7% of the variance and resulted in no items with factor patterns below the $|0.30|$ criterion (Gorsuch, 1983), 15 singlets, and two doublets. After including only the higher factor loadings for the doublets, nine items loaded on Factor 1, two items loaded on Factor 2, and six items loaded on Factor 3.

Following the derivation of the CBI factor structure in the internet sample, an attempt was made to replicate the exploratory, derived structure using the paper-and-pencil sample. Results showed that the best fitting solution was the direct oblimin rotation for 3 factors accounting for 69.0% of the variance. This solution resulted in no items with factor patterns below the $|0.30|$ criterion (Gorsuch, 1983), 16 singlets, and one doublet. After including only the higher factor loadings for the doublet, seven items loaded on Factor 1, five items loaded on Factor 2, and five items loaded on Factor 3.

-----Insert Table 3-----

Although the paper-and-pencil sample did not replicate the exact structure derived using the internet sample exactly, seven common items fitting Factor 1 were identified (Items 8, 9, 10, 12, 13, 15, and 16) across both samples, two common items fitting Factor 2 were identified (items 3 and 5) across both samples, and five common items fitting Factor 3 were identified (items 1, 2, 4, 6, and 7) across both samples. Factor 1 encompassed items describing emotional reactions (e.g., sadness, loneliness, longing, loss of enjoyment) at the reminders of the deceased and was labeled “Sadness at Reminders.” Factor 2 encompassed items describing personal distress at the loss and was labeled “Distress.” Factor 3 encompassed items describing persistent images, thoughts and memories of the deceased and was labeled “Mental Preoccupation.”

The difference in the positions of items 11, 14, and 17 could be explained by the difference in the samples' demographic and clinical characteristics (e.g., type of loss, cause of death and time since death). Additionally, the difference could reflect the fact that the formal factor analysis of the whole set of 17 CBI questions was not undertaken at the time of scale development (Burnett, et al., 1997), and the obtained 14 item-structure might reflect the actual factor structure. Overall, the obtained factor structures of the CBI administered to the two samples confirm the psychometric similarities of the obtained results, thus demonstrating support for the validity of the internet study.

Discussion

This study explored the use of the internet in bereavement research. The recent literature demonstrated an increased interest in the role of internet in bereavement (Stroebe et al., 2008). The community of bereaved people on the web is growing and providing an exceptional opportunity for professionals to disseminate scientific knowledge and learn more about grief experience from the survivors. However, issues of generalizability of the results and validity of internet research have to be addressed before its wide use in bereavement research.

The reliability and validity of grief research via the internet was addressed in this paper. In particular, the results of paper-and-pencil questionnaires submitted to a sample of bereaved people were compared with the results obtained from posting the same questions on the web. A two-level comparison was completed. First, the demographic characteristics were compared to determine if there was a significant difference between the two samples. Previous studies expressed concerns that the internet communities are skewed in terms of age and gender, and generally represent an unknown quality (Evans & Mathur, 2005; Mayerson & Tryon, 2003; Riva et al., 2003; Stroebe et al., 2008). Supporting previous findings it was demonstrated that the

internet provides greater diversity of the participant pool (Nosek et al., 2002). For example, the internet participants in this study demonstrated more variability in terms of time since loss, relationship to deceased, cause of death, and marital status of the participants compared to the paper-and-pencil group. Importantly, the internet study elicited significantly more responses from recently bereaved people. These are great advantages of the internet method, because it allows greater generalizability of the results as well as an opportunity to involve people in the acute stages of grief.

Confirming previous concerns (e.g., Evans & Mathur, 2005), the internet participants were statistically younger. However, clinically, the age range remained highly representative of common groups of bereaved people, including younger individuals who lost their siblings or parents, as well as older individuals grieving the death of their spouses and children. The concern expressed by Stroebe and colleagues (2008) regarding the underrepresentation of computer users among the elderly bereaved people was not confirmed. The average internet participant was in his or her 40s, similar to the average paper-and-pencil participant. Contrary to common expectations (Evans & Mathur, 2005), the internet sample was not statistically different in terms of gender distribution. Similar to observations from other bereavement studies (Musambira, Hastings, & Hoover, 2006/2007; Storebe, Stroebe, & Schut, 2003), the majority of the participants were women. This finding demonstrates that among bereaved people there is a certain demographic group (i.e., females in their 40s) that is more likely to respond to a grief study invitation, independent of the format of the study. Thus, a researcher who is interested in greater demographic variability should approach specific groups (e.g., younger people, or males) more directly and possibly offer more incentive.

Despite the greater demographic variability of the internet participants, both samples responded similarly to the CBI and the meaning making questions. Contrary to the Nager & DeVries (2004) results, grief scores were not higher in the internet community compared to the paper-and-pencil group. Both samples reported approximately equal perception of the meaning found in their loss, which was also highly consistent with the results from other studies that examined meaning making in bereavement (Davis et al., 2000, Keesee, et al., 2008, Tolstikova et al., 2005).

Further, the psychometric property of the online grief assessment was examined by comparing it with the paper-based counterpart. Previous studies (Meyerson & Tryon, 2003; Riva et al., 2003; Stanton, 1998) identified a number of potential challenges to the reliability and validity of online tests, such as the lack of control in the testing situation and possibility of unrelated or temporary factors confounding the responses. The results obtained in current study demonstrated that completing the standardized grief scale on the web did not significantly alter its psychometric characteristics. Similar factor structure and internal reliability were obtained for both samples. However, despite the similar structure, some items loaded differently across the samples. These findings may be a result of the differences in demographic characteristics of the two samples, but also these findings highlight the need for the further validation of the CBI. Similar to the reports from Riva and colleagues (2003), the present findings show that online and offline versions of the same test can be equivalent but not always identical. For this reason, it is important to further assess the validity of traditional grief assessment instruments when they are used online.

The similarity between the online and offline grief assessment has demonstrated support for the generalizability of the findings from the internet studies to other grieving people. The data

generally demonstrated that completing a survey online did not result in significant differences in response sets of participants compared with those of participants who completed a paper-and-pencil survey. Given the findings from this study, the application of the assessment measures via internet offers advantages to both researchers and study participants without compromising the reliability of the results drawn from the data. Using the internet for data collection is a cost-efficient alternative to traditional techniques and has the potential to minimize data collection and entry errors while increasing accessibility.

Some limitations of this study include self-selected participants as well as skewed gender distribution. Further research might want to choose a more well-controlled design that incorporates the practical issues related to the sampling strategy. The important limitation of the study is a significant difference in samples' demographics and loss history. The majority of the participants from the paper-and-pencil sample were solicited through the MADD which determined the traumatic, accidental nature of their loss experience. Future research might use matched samples to examine the psychometric characteristics of the CBI. Evaluation of the validity and reliability of other grief assessment tools should be done in the future, as not all the measures could be robust to the changes in the mode of administration.

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Table 1. Positive and negative factors in internet method

Positive factors	Negative factors
Large population access	Difficulty controlling study environment
Time/cost effective	Unmonitored participants
Tools “around the clock”	Generalizability of the results is in question
Non-intrusive	Technologically/educationally skewed population
Greater anonymity	Impersonal quality of the relationships
Access to socially isolated individuals	Self-selected participants
Dynamic and interactive	Limited assessment/diagnostic tools
Allows automatic data entry	Insecurity of transmissions

Table 2. Characteristics of the samples

Characteristic	Internet N = 262	Paper-and-pencil N = 84
Gender		
Male (%)	21 (8.0)	12 (14.3)
Female (%)	241 (92.0)	72 (85.7)
Mean age (SD)	42.4 (12.1)	49.7 (12.3)
Relationship to deceased		
Parent (%)	76 (29.0)	61 (72.6)
Partner (%)	67 (25.6)	8 (9.5)
Adult child (%)	64 (24.4)	15 (17.9)*
Sibling (%)	22 (8.5)	
Other relative (%)	25 (9.5)	
Friend (%)	8 (3.1)	
Marital status		
Single (%)	51 (19.5)	6 (7.1)
Married/common law (%)	130 (49.6)	54 (64.3)
Divorced/separated (%)	22 (8.4)	23 (27.4)**
Widow/widower (%)	59 (22.5)	
Unknown		1 (1.2)
Time since loss		
Less than 1 year (%)	164 (64.1)	17 (20.5)
1-3 years (%)	38 (14.5)	17 (20.5)
More than 3 years (%)	54 (19.1)	49 (42.2)
Unknown	6 (2.3)	1 (1.2)
Cause of death		
Accident	68 (26.0)	72 (85.7)
Health condition	161 (61.5)	
Suicide	11 (4.2)	
Age	10 (3.8)	
Miscarriage/stillbirth	8 (3.1)	
Unknown	4 (1.5)	12 (14.3)
CBI		
Mean (SD)	2.73 (0.6)	2.61 (0.6)
Cronbach's α	0.92	0.95
Meaning-making		
Searched and found	126 (48.5)	38 (45.2)
Searched and not found	99 (38.1)	37 (44.0)
Not searched	35 (13.5)	9 (10.7)

* include adult children, siblings, other relatives and friends ** include divorced/separated and widowed

Table 3. CBI factor structure.

Items	Factor 1: Sadness at Reminders		Factor 2: Distress		Factor 3: Mental Preoccupation	
	Paper-and-pencil	Internet	Paper-and-pencil	Internet	Paper-and-pencil	Internet
1. Do you experience images of the events surrounding X death?					.614	.424
2. Do thoughts of X come into your mind whether you wish or not?					.709	.739
3. Do thoughts of X make you feel distressed?			-.914	.738		
4. Do you think about X?					.775	.762
5. Do images of X make you feel distressed?			-.867	.736		
6. Do you find yourself preoccupied with images or memories of X?					.823	.705
7. Do you find yourself thinking of reunion with X?					.660	.599
8. Do you find yourself missing X?	.830	.658				
9. Are you reminded by familiar objects (photos, possessions, rooms, etc.) of X?	.680	.538				
10. Do you find yourself pining for/yearning for X?	.461	.539				
11. <i>Do you find yourself looking for X in familiar places?</i>			(-.359)			(.490)
12. Do you feel distress/pain if for any reason you are confronted with the reality that X is not present/not coming back?	.551	.557				
13. Do reminders of X such as photos, situations, music, places, etc. cause you to feel longing for X?	.854	.653				
14. <i>Do reminders of X such as photos, situations, music, places, etc. cause you to feel loneliness?</i>		(.845)	(-.503)			
15. Do reminders of X such as photos, situations, music, places, etc. cause you to cry about him or her?	.434	.845				
16. Do reminders of X such as photos, situations, music, places, etc. cause you to feel sadness?	.431	.770				
17. <i>Do reminders of X such as photos, situations, music, places, etc. cause you to feel loss of enjoyment?</i>		(.760)	(-.492)			

SECTION D: LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

Before discussing the results and implications of these studies, the limitations to this research will be reviewed. The limitations of the present studies can be grouped in the following ways: conceptual limitations, scale construction limitations, and limitations related to data collection and analyses. These limitations are discussed below.

Conceptual limitations. The first set of studies used Greenberg's (Greenberg et al., 2007) concept of productive and unproductive emotional processing and operationalized it in a grief scale, which has shown promising psychometric properties. It is possible that not all aspects of the construct have been tapped by the scale. For example, the scale can be criticized as merely differentiating between positive and negative emotions in grief. Further examination of the productive and unproductive emotional grief processing in psychotherapy is needed to identify more distinctive characteristics of these two processes. It is important to expand on the operationalization of the constructs of productive and unproductive emotional grief coping. For example, the productive subscale includes many items reflecting positive feeling and not enough on, for example, grief responsibility or other productive coping mechanisms. Future researchers may want to incorporate additional items (such as grief responsibility; Heller & Zeanah, 1999) in order to better reflect the construct of productive emotional processing.

In addition, the use of terms "productive" and "unproductive" can be criticized as pathologizing and for being overly medically oriented. The specific terms "productive" and "unproductive" were used in the present study following Greenberg's conceptualization (Greenberg et al., 2007). Contemporary thanatology attempts to step away from terminology that labels grief as normal or abnormal. In medical paradigm, the term unproductive can be seen as a form of negativity and labeling. In contrast, in the existential, humanistic tradition the terms

productive and unproductive are interpreted differently: the productive process is seen as facilitating growth and self-realization, whereas the unproductive process manifests a struggle to reach full personal potential (e.g., Maslow, 1998; Rogers, 1961). For example, Eric Fromm (1994) when describing how people relate to the world, defined productive psychological orientation as a “being mode” which includes experiencing life, relating to people, being yourself, and non-productive orientation as a “having mode” which is focused on consuming, obtaining or possessing. Due to the variations in the language used in different theoretical modalities, some consideration should be given to the possibility of renaming the PUG scales. This relabeling would need to capture the intention in Greenberg’s model that some emotions prevent growth but also possibly captures Strobe’s and Schut’s (1999) view that this may be necessary to assimilate/accommodate grief.

Scale construction limitations. Despite preliminary findings that the PUG has high internal consistency, good test-retest reliability, and initial construct and predictive validity, further research is needed to add to the validity and reliability of the scale. In the present study, the initial factor analyses demonstrated that it is possible for the PUG to have a three- or a five-factor structure. The two-factor structure was selected because it offered two uncorrelated factors that corresponded best with the theoretical conceptualizations. However, the three-factor solution added a factor that could have been called “social sharing of grief feelings”, which was significantly positively correlated with the productive factor. The five-factor model would demote the scale further and extract three inter-correlated factors out of the unproductive subscale and two correlated factors out of the productive subscale. The three unproductive factors were: (1) anger, (2) guilt, and (3) other unproductive emotions. The two productive

factors were: (1) social sharing and (2) other productive emotions. The benefits of a three- or a five-factor solution, versus a two-factor solution, need to be examined in future research.

Additional research is needed on the reliability of the PUG scale. The test-retest reliability of the scale was assessed using a six-month temporal period, which is quite lengthy period. It is possible that temporal fluctuations occur that are smoothed over in a six month period. It would be important to estimate reliability at different (shorter) time periods (Crocker & Algina, 1986).

Examination of the stability of the psychometric properties and factor structure of the PUG among diverse groups of bereaved people is necessary. In this regard, a first good step would be to explore relations between the PUG subscales and other clinical outcomes that may be associated with productive-unproductive emotional processing, such as complicated grief and subjective well-being. Previous research demonstrated that complicated grief is negatively associated with meaning making (e.g., Tolstikova et al., 2005), which could lead to a hypothesis that complicate grief is positively associated with unproductive emotional coping. Similarly, according to previous findings, subjective well-being is positively correlated with meaning making (Davis et al., 2000). It could be expected, therefore, that subjective well-being is positively associated with the productive emotional processing.

Research exploring the differential role of the various combinations of the PUG subscales (profiles) will be especially important, as these profiles may suggest specific targets for intervention. The examination of the individual profiles (i.e., constellations of productive and unproductive scores) is likely to add knowledge about grief work. For example, some people might have high productive and high unproductive scores, while others low productive and high unproductive scores, and so on. The endpoint arrived at by different subscale scores/profiles

could help to elucidate important aspects of the grief work. The current study examined the validity of both productive and unproductive subscales independently. It did not investigate the possible multiple profiles for their possible effects on behavioural and clinical outcomes. Different constellations of the productive and unproductive scores in individuals' profiles are likely to indicate different ways of coping and may predict different outcomes. Further investigation of the effect that a specific constellation of scores plays in predicting grief outcomes seems promising.

Another limitation of the study was reliance solely on self-report measures of emotional responding (i.e., DERS, EACS, and TAS-20) to provide data on the construct validity of the PUG. As a result, the relations between the PUG subscales and other aspects of emotional responding, such as, for example, emotions evoked and expressed in therapy, or reported by the observers, remain to be determined. Moreover, as it is likely that some individuals do not have full awareness of their emotional responses, the reliance on only self-reported emotional responding reduces the extent to which an investigator can obtain a comprehensive report on those responses. To further evaluate construct validity of the PUG, other measures of emotional responding could be administered, such as the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) that is based on a series of emotion-based problem-solving items (Mayer, Salovey, & Caruso, 2002) or observer-rated measures such as the Observer Alexithymia Scale (OAS) (Haviland, Warren, & Riggs, 2000).

Limitations in data collection. The sample for the first study was recruited via the Internet. It would be helpful to validate the PUG using a non-Internet sample. Although, the findings from the second study suggest that Internet methodology can be a suitable alternative to more traditional paper-based methods, as a newly developed measure, the PUG might not be

sufficiently robust in different conditions and its psychometric properties might change in a different sample. Attempts have to be made to eliminate possible biases that may result from varied administration of the PUG (Michell, 1999).

The demographic questionnaires used in the dissertation studies have a number of shortcomings. Some characteristics overlap, for example, the category “widow/widower” reflected both marital status and conjugal loss experience; the cause of death categories “illness” and “age” were not clearly defined and methodologically insensitive. Also, the demographic characteristic of “marital status” can be socially restricting and might have been better defined as the “relationship status”. Taken together, grouping participants based on these demographic characteristics might have been misleading and their value in the analyses reported may be quite limited. Also, because the measures were administered in the same order, there was also the possibility of an unaccounted for order effect in the internet survey administration.

There are other limitations associated with the study sample. The important (and rather common) drawback is that the vast majority of the participants were females. Whether the results of this study can be generalized to males remains an empirical question. Further, the responses to the study came from bereaved people from English-speaking countries (e.g., Canada, US, Australia, and South Africa). Unfortunately, the demographic information related to the place residence and culture of origin was not collected. Therefore, generalizability of the results to individuals from diverse ethnic/racial background is not clear. Given the role of gender socialization and culture in grief and emotional processing (e.g., Markus, & Kitayama, 1991; Manstead, 1992), the relationship between grief, emotional functioning and meaning making may differ as a function of gender or cultural background. Further research is needed that explores the influence of gender and culture on the PUG results. In order to increase

demographic variability, different groups (e.g., younger people, or males or cultural minorities) have to be approached more directly and possibly offered more incentive in order to encourage them to participate.

SECTION E: GENERAL DISCUSSION AND IMPLICATIONS

The present dissertation addressed two research questions. First, it examined the relation between emotional functioning and meaning making in grief. Second, it addressed the validity and reliability of the Internet data collection in grief research. In this section, the results of the studies are reviewed and integrated in the context of the overarching goals of the dissertation.

The dissertation provided empirical support for the theoretical constructs of productive and unproductive emotional processing in grief, and confirmed the validity and reliability of the Productive Unproductive Grief functioning scale (PUG). The PUG has high internal consistency, good test-retest reliability, and adequate construct and predictive validity. Individuals' productive and unproductive scores allow for the cataloging of a coping profile. It was demonstrated that certain people (e.g., single, younger people, people who lost a child or were bereaved due to accidental death) could be more at risk for unproductive emotional grief functioning that results in an inability to find meaning in the experience. The unproductive processing was also shown to correlate with maladaptive coping strategies (such as substance use). Therefore, the PUG assessment could be useful in clinical settings for the identification of dysfunctional grieving. In turn, the PUG could be used to select therapeutic strategies. For example, for people in productive emotional state, a cognitive-constructivist therapeutic approach focused on meaning construction might be more effective. People in productive emotional state are likely to be more receptive to meaning making strategies in therapy, as suggested by the positive correlation between productive emotions and meaning making in Study 3. In contrast, people engaged in unproductive emotional processing would not likely be successful using cognitive restructuring, as evidenced by the inverse relation between

unproductive scores and meaning making scores. The focus of interventions for unproductive emotional processing should be on identifying and changing maladaptive emotional responses (Greenberg & Paivio, 1997).

The current study addressed the recent controversy in grief literature related to the role of avoidance in grieving (Bonanno et al., 1995). The results supported the idea that people in an unproductive emotional state are more likely to cope through denial and disengagement. The findings suggest that avoidance of feelings might be an adaptive strategy in an unproductive emotional state, whereas processing of feelings is an adaptive strategy in a productive emotional state.

The present research further confirmed the difference among the three aspects of meaning making (i.e., sense making, self benefit and positive change) suggested by Davis (2008), Keese, et al. (2008) and Gillies & Neimeyer (2006). The results show that each aspect has different predictors. In particular, the results add support to the Michael & Snyder (2005) findings that people who seem to struggle more emotionally report increased self benefits. This association was not found for sense making and positive change. The important theoretical and clinical implication from this result is that self benefit appears to have distinct subjective experience for the survivors. The benefits finding should be further investigated empirically.

The present research has contributed to the emotion and cognition debate. It was demonstrated that emotional processing of grief feelings can either promote or hinder meaning reconstruction, depending on the valence, functional origin and productivity of the experienced emotion. It was shown that it is not emotional expression by itself or meaning making by itself that are adaptive, but rather that assimilation/accommodation of loss experience is fostered when emotional and cognitive components are integrated together. By establishing the relation

between emotion and meaning the study indicated the need for a more comprehensive model of grief coping. The findings demonstrated that emotion and cognition are intertwined and enhance each other.

The data for the study were collected via the Internet which permitted the investigator to reach a diverse group of bereaved people, including those who had been recently bereaved. Importantly, getting more responses from people who have been recently bereaved may be one advantage to using Internet data collection. Despite the greater demographic variability of the Internet participants, both samples (Internet and paper-and-pencil) responded similarly to the CBI and the meaning questions. Contrary to the findings of Nager & de Vries (2004), grief scores were not higher in the Internet sample. Highly consistent with the results from other studies that examined meaning making in bereavement (Davis et al., 2000, Frantz et al., 1998; Keesee et al., 2008), both samples reported approximately equal perception of the meaning found in their loss. Overall, the present study results demonstrated that completing a survey online did not result in significant differences in the data. No significant differences were found between the data gathering techniques on internal consistency of the CBI, and only some differences in the CBI factor-structure. These findings suggest that online data collection does not compromise the integrity of the data and is a suitable alternative to the more traditional methods.

In the context of the overarching goals of the dissertation, the results, embedded in Greenberg's empirically supported theory (Greenberg, 2002), have cut across other constructs in the grief literature. These constructs include "grief work" (Bowlby, 1980; Freud, 1917/1957; Lindeman, 1944), avoidance of emotional pain (Bonanno et al., 1995), search for meaning (Davis et al., 2000; Neimeyer, 2001), and posttraumatic growth (Tedeschi & Calhoun, 1996). The results confirm Greenberg's idea that emotions can play both adaptive and maladaptive roles

in the area of grief (Greenberg & Paivio, 1997). Notions of productive and unproductive emotional functioning in grief make it possible to describe distinctive ways that people cope with their losses and suggest ways that they may assimilate/accommodate this shattering experience.

SECTION F: THE CHANGING FACE OF GRIEF RESEARCH

In the face of the changing reality, research on grief changes as well. Previous grief theories tended to emphasise primarily one aspect of coping with grief i.e., grief work and emotional detachment from the deceased, or reconstruction of the shattered world and meaning making. The more recent models of grief are now focusing on context and circumstances of a loss, variability in individuals' grief experiences, meaning of the loss to individual survivors and their families, recognition that, rather than a withdrawal of attachment from the deceased (or lost object), there is a continued symbolic or continuing bond, and adjusting to the new world that exists after the loss (including new interpretations one has of the environment, and new elements in one's identity). The emphasis appears to have shifted from identifying symptoms to the *process* of grieving. Recent theorizing has begun to recognize that grief is a dynamic process, and models have begun to reflect this fact. One of these recent dynamic models that takes into account several grief tasks is the Dual Process Model (Stroebe & Schut, 1999), which incorporates loss orientation and restoration orientation. Just as the studies within this dissertation have added to the development of a dynamic model of coping with grief, so has the Dual Processing Model added an understanding to the dynamic of coping with grief in another way. The Dual Processing Model examines two fundamental processes that are labelled loss orientation and restoration orientation. In the loss orientation, the focus is on grief work and letting go of bonds to the deceased. In the restoration orientation, the focus is on attending to life changes, new roles and/or identities and doing new things. Thus, similar to the dual process model, the studies presented herein incorporated two processes in grief coping in dynamic relationship. The present research, however, “slices” grief coping in a different way, focusing more closely on affective component of grieving and cognitive component of grieving.

To explain further, in the dual process model, the loss orientation that deals with the loss experience itself includes “a range of emotional reactions ... from pleasurable reminiscing to painful longing, from happiness that the deceased is no longer suffering to despair that one is left alone” (p. 213). Thus, using the terms from the proposed productive-unproductive grief processing model, the loss orientation appears to include both productive and unproductive emotional processing. For example, a recent empirical study investigating the use of the dual process model in grief counselling (Richardson, 2007) demonstrated that there was a significant inverse association between well-being and going over and over the circumstances of the loss. It was noted that while many widows and widowers benefit from visiting cemeteries and thinking about their loved ones, those who dwell excessively on the circumstances of a spouse’s death “might compromise their mental health” (p. 322). Similarly, Nolen-Hoeksema (2002), have shown significant associations between rumination and depression in bereavement. This experience of being stuck in emotional pain was described as one of the characteristics of unproductive emotional processing in the present dissertation. Following Richardson (2007), the results of the study support the recommendation that in grief counselling, practitioners should carefully assess how bereaved persons’ grieving style enhance or threaten their well-being.

In the integrative emotion-meaning perspective presented in this dissertation, the emotional component of grieving is present in both loss oriented tasks and restoration oriented tasks and can be either productive or unproductive. The productive and unproductive emotional processing in grief is reflected in the restoration oriented tasks as well. According to Stroebe & Schut (1999), restoration-oriented coping involves adjustment to the changes that are secondary consequences of loss, such as taking over the tasks and responsibilities of the deceased, reorganizing of life without the loved one and developing of a new role in social relations. Many

emotional reactions can be involved in coping with the restoration tasks, including pride and satisfaction from developing new skills, to anxiety and despair at the loneliness. In the terms used by the emotionally focused model adopted in the present dissertation, both productive and unproductive emotional processing can be parts of the restoration orientation. Thus, the demonstrated relation between emotion and meaning in this dissertation appears to extend the concept of “restoration” in grief.

A second change in grief research revolves around the Internet and its effects. Not only has thanatology changed its conceptualization of grieving process by making it more inclusive and dynamic, the same tendency can also be observed in the way in which researchers collect the data and where they look for the shared experience. Many recent studies have turned their attention to the internet as a new venue to get in touch with bereaved people (e.g., de Vries & Rutherford, 2004; Field & Filanosky, 2010). The ever changing world, globalization and the increasing speed of living have led to the changes in time and space for grieving. The internet has become a postmodern way to celebrate private mourning in a public place and a new form of meaningful personal expression (de Vries & Rutherford, 2004). The internet research in grief makes scientific hypotheses testing more dynamic and fast. A large number of grief stories can now be analyzed in a relatively short period of time without significant expenses. This will likely further change the face of thanatology in relation to social norms for death, dying and bereavement, the culture of grief and contemporary thinking about death-related issues.

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Demographic Questionnaire

Your name: _____

Your age: _____

Marital status:

You experienced the death of your:

Child Spouse Parent Other relative (please specify) _____

How many surviving children do you have: _____

How long has it been since the loss: _____

Cause of the death:

<i>Accident</i>	<i>Illness</i>	<i>Age</i>	<i>Other (please specify)</i>
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Were there any other deaths in your family that you grieve about? _____

Do you work: *Yes* *No*

Are you involved in:

A social group Leisure activity Business or science project Other

Who lives with you: *Alone* *Close relatives* *Friend* *Roommate*

Are you involved in any grief support program or grief counseling: *Yes* *No*

Are you (circle one):

<i>Not at all</i>	1	2	3	4	5	6	7	<i>Very</i>
<i>Religious</i>				<i>Moderately</i>				<i>Religious</i>

What is your current religious affiliation (circle one):

Protestant Catholic Jewish Muslim Buddhist None Other

Core Bereavement Items Inventory

Please, read each question and mark the answer that best describes your experience. The blanks refer to the deceased person over whom you are grieving.

A. IMAGES AND THOUGHTS

Continuously Quite a bit of the time A little bit of the time Never

1. Do you experience images of the events surrounding _____ death?
2. Do thoughts of _____ come into your mind whether you wish or not?
3. Do thoughts of _____ make you feel distressed?
4. Do you think about _____?
5. Do images of _____ make you feel distressed?
6. Do you find yourself preoccupied with images or memories of _____?
7. Do you find yourself thinking of reunion with _____?

B. ACUTE SEPARATION

8. Do you find yourself missing _____?
9. Are you reminded by familiar objects (photos, possessions, rooms, etc.) of _____?
10. Do you find yourself pining for/yearning for _____?
11. Do you find yourself looking for _____ in familiar places?
12. Do you feel distress/pain if for any reason you are confronted with the reality that _____ is not present/not coming back?

C. GRIEF

13. Do reminders of _____ such as photos, situations, music, places, etc. cause you to feel longing for _____?
14. Do reminders of _____ such as photos, situations, music, places, etc. cause you to feel loneliness?
15. Do reminders of _____ such as photos, situations, music, places, etc. cause you to cry about him or her?

16. Do reminders of _____ such as photos, situations, music, places, etc. cause you to feel sadness?

17. Do reminders of _____ such as photos, situations, music, places, etc. cause you to feel loss of enjoyment?

Scoring:

Never = 1, A little bit of time = 2; Quite a bit of the time = 3; A lot of the time = 4

Higher sum of the scores means more intense grief.

Toronto Alexithymia Scale

Here are a number of characteristics that may or may not apply to you. Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement.

1	2	3	4	5
Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree

1. _____ I am often confused about what emotion I am feeling.
2. _____ It is difficult for me to find the right words for my feelings.
3. _____ I have physical sensations that even doctors don't understand.
4. _____ I am able to describe my feelings easily.
5. _____ I prefer to analyze problems rather than just describe them.
6. _____ When I am upset, I don't know if I am sad, frightened or angry.
7. _____ I am often puzzled by sensations in my body.
8. _____ I prefer to just let things happen rather than to understand why they turned out that way.
9. _____ I have feelings that I can't quite identify.
10. _____ Being in touch with emotions is essential.
11. _____ I find it hard to describe how I feel about people.
12. _____ People tell me to describe my feelings more.
13. _____ I don't know what's going on inside me.
14. _____ I often don't know why I am angry.
15. _____ I prefer talking to people about their daily activities rather than their feelings.
16. _____ I prefer to watch "light" entertainment shows rather than psychological dramas.
17. _____ It is difficult for me to reveal my innermost feelings, even to close friends.
18. _____ I can feel close to someone, even in moments of silence.
19. _____ I find examination of my feelings useful in solving personal problems.
20. _____ Looking for hidden meanings in movies or plays distracts from their enjoyment.

Scoring:

Difficulty identifying feelings: 1, 3, 6, 7, 9, 13, 14 (sum items with no reversal of coding)

Difficulty describing feelings: 2, 4, 11, 12, 17 (sum items with reversal of item 4)

Externally-oriented thinking: 5, 8, 10, 15, 16, 18, 19, 20 (sum items with reversal of items 5, 10, 18 & 19)

Difficulties in Emotion Regulation Scale (DERS)

Please indicate how often the following statements apply to you by writing the appropriate number from the scale below on the line beside each item:

1-----2-----3-----4-----5
almost never sometimes about half the time most of the time almost always (0-10%) (11-35%) (36-65%) (66-90%) (91-100%)

- _____ 1) I am clear about my feelings.
- _____ 2) I pay attention to how I feel.
- _____ 3) I experience my emotions as overwhelming and out of control.
- _____ 4) I have no idea how I am feeling.
- _____ 5) I have difficulty making sense out of my feelings.
- _____ 6) I am attentive to my feelings.
- _____ 7) I know exactly how I am feeling.
- _____ 8) I care about what I am feeling.
- _____ 9) I am confused about how I feel.
- _____ 10) When I'm upset, I acknowledge my emotions.
- _____ 11) When I'm upset, I become angry with myself for feeling that way.
- _____ 12) When I'm upset, I become embarrassed for feeling that way.
- _____ 13) When I'm upset, I have difficulty getting work done.
- _____ 14) When I'm upset, I become out of control.
- _____ 15) When I'm upset, I believe that I will remain that way for a long time.
- _____ 16) When I'm upset, I believe that I'll end up feeling very depressed.
- _____ 17) When I'm upset, I believe that my feelings are valid and important.
- _____ 18) When I'm upset, I have difficulty focusing on other things.
- _____ 19) When I'm upset, I feel out of control.
- _____ 20) When I'm upset, I can still get things done.

- _____ 21) When I'm upset, I feel ashamed with myself for feeling that way.
- _____ 22) When I'm upset, I know that I can find a way to eventually feel better.
- _____ 23) When I'm upset, I feel like I am weak.
- _____ 24) When I'm upset, I feel like I can remain in control of my behaviors.
- _____ 25) When I'm upset, I feel guilty for feeling that way.
- _____ 26) When I'm upset, I have difficulty concentrating.
- _____ 27) When I'm upset, I have difficulty controlling my behaviors.
- _____ 28) When I'm upset, I believe that there is nothing I can do to make myself feel better.
- _____ 29) When I'm upset, I become irritated with myself for feeling that way.
- _____ 30) When I'm upset, I start to feel very bad about myself.
- _____ 31) When I'm upset, I believe that wallowing in it is all I can do.
- _____ 32) When I'm upset, I lose control over my behaviors.
- _____ 33) When I'm upset, I have difficulty thinking about anything else.
- _____ 34) When I'm upset, I take time to figure out what I'm really feeling.
- _____ 35) When I'm upset, it takes me a long time to feel better.
- _____ 36) When I'm upset, my emotions feel overwhelming.

Scoring:

Nonacceptance of Emotional Responses (NONACCEPTANCE): 11, 12, 21, 23, 25, 29 (sum items with no reverse coding)

Difficulties Engaging in Goal-Directed Behavior (GOALS): 13, 18, 20, 26, 33 (sum items with reverse coding item 20)

Impulse Control Difficulties (IMPULSE): 3, 14, 19, 24, 27, 32 (sum items with reverse coding item 24)

Lack of Emotional Awareness (AWARENESS): 2, 6, 8, 10, 17, 34 (sum items with reverse coding for all the items)

Limited Access to Emotional Regulation Strategies (STRATEGIES): 15, 16, 22, 28, 30, 31, 35, 36 (sum items with reverse coding item 22)

Lack of Emotional Clarity (CLARITY): 1, 4, 5, 7, 9 (sum items with reverse coding items 1, 7)

The Emotional Approach Coping Scale

See instructions from COPE scale

- 1 = I usually don't do this at all
- 2 = I usually do this a little bit
- 3 = I usually do this a medium amount
- 4 = I usually do this a lot

1. I take the time to figure out what I'm really feeling.
2. I delve into my feelings to get a thorough understanding of them.
3. I realize that my feelings are valid and important.
4. I acknowledge my emotions.
5. I work on understanding my feelings.
6. I explore my emotions.
7. I find a way to understand my emotions better.
8. I look closely at the reasons for my feelings.
9. I take time to express my emotions.
10. I let my feelings come out freely.
11. I allow myself to express my emotions.
12. I feel free to express my emotions.
13. I express the feelings I am having.
14. I find a way to express my emotions.
15. I let my feelings out.
16. I get my feelings out in the open.

Scoring:

Emotional Processing: 1 – 8 (sum the items with no reverse coding)

Emotional Expression: 9 – 16 (sum the items with no reverse coding)

COPE

There are lots of ways to try to deal with stress. Please indicate what you generally do and feel, when you experience stressful events. Obviously, different events bring out somewhat different responses, but think about what you usually do when you are under a lot of stress.

Respond to each of the following items by circling one number for each question using the response choices listed below. Please try to respond to each item separately in your mind from each other item. Choose your answers thoughtfully, and make your answers as true FOR YOU as you can. Please answer every item. There are no "right" or "wrong" answers, so choose the most accurate answer for YOU--not what you think "most people" would say or do. Indicate what YOU usually do when YOU experience a stressful event.

- 1 = I usually don't do this at all
- 2 = I usually do this a little bit
- 3 = I usually do this a medium amount
- 4 = I usually do this a lot

1. I try to grow as a person as a result of the experience.
2. I turn to work or other substitute activities to take my mind off things.
3. I get upset and let my emotions out.
4. I try to get advice from someone about what to do.
5. I concentrate my efforts on doing something about it.
6. I say to myself "this isn't real."
7. I put my trust in God.
8. I laugh about the situation.
9. I admit to myself that I can't deal with it, and quit trying.
10. I restrain myself from doing anything too quickly.
11. I discuss my feelings with someone.
12. I use alcohol or drugs to make myself feel better.
13. I get used to the idea that it happened.

14. I talk to someone to find out more about the situation.
15. I keep myself from getting distracted by other thoughts or activities.
16. I daydream about things other than this.
17. I get upset, and am really aware of it.
18. I seek God's help.
19. I make a plan of action.
20. I make jokes about it.
21. I accept that this has happened and that it can't be changed.
22. I hold off doing anything about it until the situation permits.
23. I try to get emotional support from friends or relatives.
24. I just give up trying to reach my goal.
25. I take additional action to try to get rid of the problem.
26. I try to lose myself for a while by drinking alcohol or taking drugs.
27. I refuse to believe that it has happened.
28. I let my feelings out.
29. I try to see it in a different light, to make it seem more positive.
30. I talk to someone who could do something concrete about the problem.
31. I sleep more than usual.
32. I try to come up with a strategy about what to do.
33. I focus on dealing with this problem, and if necessary let other things slide a little.
34. I get sympathy and understanding from someone.
35. I drink alcohol or take drugs, in order to think about it less.
36. I kid around about it.

37. I give up the attempt to get what I want.
38. I look for something good in what is happening.
39. I think about how I might best handle the problem.
40. I pretend that it hasn't really happened.
41. I make sure not to make matters worse by acting too soon.
42. I try hard to prevent other things from interfering with my efforts at dealing with this.
43. I go to movies or watch TV, to think about it less.
44. I accept the reality of the fact that it happened.
45. I ask people who have had similar experiences what they did.
46. I feel a lot of emotional distress and I find myself expressing those feelings a lot.
47. I take direct action to get around the problem.
48. I try to find comfort in my religion.
49. I force myself to wait for the right time to do something.
50. I make fun of the situation.
51. I reduce the amount of effort I'm putting into solving the problem.
52. I talk to someone about how I feel.
53. I use alcohol or drugs to help me get through it.
54. I learn to live with it.
55. I put aside other activities in order to concentrate on this.
56. I think hard about what steps to take.
57. I act as though it hasn't even happened.
58. I do what has to be done, one step at a time.
59. I learn something from the experience.

60. I pray more than usual.

Scoring:

Sum items listed, with no reversals of coding:

Positive reinterpretation and growth: 1, 29, 38, 59

Mental disengagement: 2, 16, 31, 43

Focus on and venting of emotions: 3, 17, 28, 46

Use of instrumental social support: 4, 14, 30, 45

Active coping: 5, 25, 47, 58

Denial: 6, 27, 40, 57

Religious coping: 7, 18, 48, 60

Humor: 8, 20, 36, 50

Behavioral disengagement: 9, 24, 37, 51

Restraint: 10, 22, 41, 49

Use of emotional social support: 11, 23, 34, 52

Substance use: 12, 26, 35, 53

Acceptance: 13, 21, 44, 54

Suppression of competing activities: 15, 33, 42, 55

Planning: 19, 32, 39, 56

Productive-Unproductive Emotional Processing Questionnaire (PUG)

Please read each question and mark the answer that best describes how you have been feeling over the past month in relation to your lost loved one.

Almost never (less than once a month)	= 1
Rarely (monthly)	= 2
Sometimes (weekly)	= 3
Often (daily)	= 4
Always (several times a day)	= 5

1. I find myself yearning and pining for him/her.
2. I feel helpless.
3. I very much miss him/her.
4. Looking at our pictures together I feel warm and loving.
5. I remember the good parts as well as the difficult parts of our time together.
6. I cry when I think about him/her.
7. I feel that I have lost my sense of security or safety since his/her death.
8. I feel afraid that I won't be able to cope.
9. I feel that I have lost my ability to regulate my emotions since his/her death.
10. I feel myself longing and yearning for him/her.
11. I feel that I have lost my sense of emotional control since his/her death.
12. When I think of him/her I feel warm and tender.
13. I feel overwhelmed with grief.
14. I feel stuck in my pain.
15. I feel that my life is useless without him/her.
16. I feel tender and loving around places and things associated with him/her.

17. I feel sad when I think of what I have lost.
18. I feel preoccupied by distressing thoughts and memories of him/her.
19. An unusual numbness comes over me when I think of him/her.
20. I feel like things are not real.
21. I have a feeling that I don't have control over what happens to me.
22. Memories of him/her create a warm feeling.
23. I can't help myself feeling angry about his/her death.
24. There are things to do with his/her death that make me feel guilty.
25. I feel hopeless.
26. I feel that I have taken in the good parts of what we had.
27. I feel bitter over his/her death.
28. I keep asking myself: "Why it happened to me?"
29. I resent that this should have happened.
30. I feel his/her death is unfair.
31. I feel guilty when I think of him/her.
32. I cannot accept his/her death.
33. I blame myself for his/her death.

Scoring:

Productive emotional state: 1, 3, 4, 5, 6, 10, 12, 16, 17, 22, 26. Sum items with no reverse coding.

Unproductive emotional state: 2, 7, 8, 9, 11, 13, 14, 15, 18, 19, 20, 21, 23, 24, 25, 27, 28, 29, 30, 31, 32, 33. Sum items with no reverse coding.

Meaning Making Questions

- 1 Some people have said that they find themselves searching to make some sense or find some meaning in their close person's death. Have you ever done this since your loved one's death?

(1) no, never, (2) yes, but rarely, (3) yes, sometimes, (4) yes, often, (5) yes, all the time

- 2 Have you made any sense or found any meaning in your loved one's death?

(1) no, not at all, (2) yes, a little, (3) yes, some, (4) yes, quite a bit, (5) yes, a great deal

- 3 Despite the tragedy of the death, is there anything positive or good that has come about as a result of the death?

(1) no, not at all, (2) yes, a little, (3) yes, some, (4) yes, quite a bit, (5) yes, a great deal

- 4 Are there any ways in which you are now a different person than you were before the death?

(1) no, not at all, (2) yes, a little, (3) yes, some, (4) yes, quite a bit, (5) yes, a great deal

- 5 As a result of the death have you felt any of the following:

a. I am more mature, confident, independent, stronger

(1) no, not at all, (2) yes, a little, (3) yes, some, (4) yes, quite a bit, (5) yes, a great deal

b. I can't leave home, can't make decisions, became more cautious

(1) no, not at all, (2) yes, a little, (3) yes, some, (4) yes, quite a bit, (5) yes, a great deal

c. I am more compassionate and understanding, tell people I love them

(1) no, not at all, (2) yes, a little, (3) yes, some, (4) yes, quite a bit, (5) yes, a great deal

d. I am lonelier, sadder, part of me died

(1) no, not at all, (2) yes, a little, (3) yes, some, (4) yes, quite a bit, (5) yes, a great deal

e. I am closer to friends and family, have new role in family

(1) no, not at all, (2) yes, a little, (3) yes, some, (4) yes, quite a bit, (5) yes, a great deal

f. I am more afraid of death, cancer, more fragile

(1) no, not at all, (2) yes, a little, (3) yes, some, (4) yes, quite a bit, (5) yes, a great deal

g. I am bitter, hardened, nastier, tougher

(1) no, not at all, (2) yes, a little, (3) yes, some, (4) yes, quite a bit, (5) yes, a great deal

h. I live in the present and appreciate life

(1) no, not at all, (2) yes, a little, (3) yes, some, (4) yes, quite a bit, (5) yes, a great deal

i. Other _____